GOVERNOR
BRIAN SCHWEITZER

STATE OF MONTANA

Governor's Executive Budget
Fiscal Years 2008 – 2009

Renewable Resource Grant and Loan Program

Department of Natural Resources and Conservation

Conservation and Resource Development Division

Volume 6

Renewable Resource Grant and Loan Program

Project Evaluations and Funding Recommendations
For the 2009 Biennium

and

2007 Biennium Status Report

Prepared by the

Montana
Department of Natural Resources
and Conservation

Conservation and Resource Development Division
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January 2007

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LIST OF ABBREVIATIONS

AC..... asbestos cement
ACO..... Administrative Compliance Order
ACOE ..... U.S. Army Corps of Engineers
AGC..... Associated General Contractors
ASARCO ..... American Smelting and Refining Company
BCD..... Beaverhead Conservation District
BCWSD ..... Brady County Water and Sewer District
BFC ..... Blackfoot Challenge
BHWC..... Big Hole Watershed Committee
BIA..... Bureau of Indian Affairs
BMP..... Best Management Practices
BNR..... Biological Nutrient Removal
BOD..... biological oxygen demand
BRID..... Bitter Root Irrigation District
BRP ..... Buffalo Rapids Project
BRWA..... Boulder River Watershed Association
BTU ..... British Thermal Unit
CD ..... Conservation District
CDBG ..... Community Development Block Grant
CERCLA..... Comprehensive Environmental Response, Compensation, and Liability Act
cfs..... cubic feet per second
CFR ..... Code of Federal Regulations
CIP..... Chester Irrigation Project
CIPP ..... cured-in-place pipe
CMR ..... Charles M. Russell (National Wildlife Refuge)
CSKT..... Confederated Salish and Kootenai Tribes
DAFT ..... dissolved air flotation thickener
DBP ..... disinfection byproducts
DEQ..... Montana Department of Environmental Quality
DFWP..... Montana Department of Fish, Wildlife & Parks
DNRC ..... Montana Department of Natural Resources and Conservation
DOC..... Montana Department of Commerce
DOE..... U.S. Department of Energy
DOT..... Montana Department of Transportation
DU ..... Ducks Unlimited
DW SRF ..... Drinking Water State Revolving Fund
EBID ..... East Bench Irrigation District
EDU..... equivalent dwelling unit
EE/CA..... Engineering Evaluation/Cost Analysis
EPA..... U.S. Environmental Protection Agency
EPDM ..... ethylene propylene diene monomer
EPP ..... Executive Planning Process
ESR ..... Engineering Study Report
EQIP..... Environmental Quality Incentive Program
FCWP..... Flint Creek Water Project
FEMA..... Federal Emergency Management Agency
FPIP..... Fort Peck Irrigation Project
FSA..... Farm Service Agency
FY..... Fiscal Year
GID ..... Greenfields Irrigation District
GIS ..... Geographic Information System
gpd..... gallons per day

GMCD..... Green Mountain Conservation District
gpcd..... gallons per capita per day
gpm..... gallons per minute
GWIC..... Ground-water Information Center, MBMG
HAA ..... halo-acetic acids
HEC-RAS ..... Hydraulic Engineering Center-River Analysis System
HDPE..... high-density polyethylene
HID ..... Hysham Irrigation District
HLE..... Hebgen Lake Estates
HNF ..... Helena National Forest
I&I ..... infiltration and inflow
I/P ..... infiltration/percolation
IHS..... Indian Health Services
ISO ..... Independent System Operator
JBOC ..... Joint Board of Control
kw ..... kilowatt
kwh ..... kilowatt-hour
LIDAR ..... light detection and ranging
LMI..... low and moderate income
MARCO ..... Montana Aviation Research Company
MBMG ..... Montana Bureau of Mines and Geology
MCA..... Montana Code Annotated
MCCD..... Meagher County Conservation District
MCL ..... maximum contaminant level
mg/l..... milligrams per liter
MPDES..... Montana Pollutant Discharge Elimination System
MRAS ..... medium rate activated sludge (system)
MRW..... Marias River Watershed
MRWS ..... Montana Rural Water Systems
MSCA ..... Montana Salinity Control Association
MSU..... Montana State University
NCAT ..... National Center for Appropriate Technology
NEPA ..... National Environmental Policy Act
NPCD ..... North Powell Conservation District
NPDES ..... National Pollutant Discharge Elimination System
NRCS ..... Natural Resources Conservation Service, U.S. Department of Agriculture
NVCWSD..... North Valley County Water and Sewer District
NWP ..... Nilan Water Project
O&M ..... operation and maintenance
PAM ..... polyacrylamide
PDM..... Pre-Disaster Mitigation, FEMA
PER ..... Preliminary Engineering Report
pH ..... Potential Hydrogen
PID..... Petrolia Irrigation District
PAM ..... polyacrylamide
PL ..... Public Law
PPL..... Pacific Power and Light
PVC ..... polyvinyl chloride
QAPP..... Quality Assurance Project Plan
RAS ..... return activated sludge
RC&D ..... Resource Conservation and Development
RD ..... Rural Development
RDB ..... Resource Development Bureau
RFP ..... request for proposal

RID ..... Rural Improvement District
RLF..... Revolving Loan Fund
RMS..... Resource Management System
RRGL..... Renewable Resource Grant and Loan program
RSID..... Rural Special Improvement District
RWS ..... Regional Water System
SBR ..... sequencing batch reactor
SCADA ..... Supervisory Control and Data Acquisition
SCCDC..... Sanders County Community Development Corporation
SDWA..... Safe Drinking Water Act
SGCD ..... Sweet Grass County Conservation District
SRF ..... State Revolving Fund
SSO..... sanitary-sewer-overflow(s)
STAG ..... State and Tribal Assistance Grant
SWPB..... State Water Projects Bureau
SWUID..... Sidney Water Users Irrigation District
TAC..... Technical Advisory Committee
THM..... trihalomethanes
TMDL..... Total Maximum Daily Load
TOC ..... total organic carbon
TSEP ..... Treasure State Endowment Program
TSS..... total suspended-solids concentration
UCF ..... Montana Urban and Community Forestry (Program)
UCFRB ..... Upper Clark Fork River Basin
USBR..... Bureau of Reclamation, U.S. Department of the Interior
USFS..... U.S. Forest Service, U.S. Department of Agriculture
USFWS..... U.S. Fish and Wildlife Service
USGS ..... U.S. Geological Survey
UV..... ultraviolet
VNRP..... Voluntary Nutrient Reduction Program (Clark Fork River)
VNRS..... Voluntary Nutrient Reduction Strategy
WPC SRF..... Water Pollution Control State Revolving Fund
WPA..... Work Projects Administration
WRC ..... Watershed Restoration Coalition
WRD ..... Water Resources Division, DNRC
WRDA..... Water Resources Development Act, USDA
WSD ..... Water and Sewer District
WWTP ..... Wastewater Treatment Plant

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INTRODUCTION

The Renewable Resource Grant and Loan Program provides funding for projects that conserve, manage, develop, or preserve renewable resources in Montana. Governmental entities may apply to the program to obtain funding for resource-related projects. Past projects have included the construction of municipal water and sewer systems, irrigation system rehabilitation, reforestation, watershed restoration, resource studies, and engineering and feasibility studies for construction projects. Applications are due May 15 of each even-numbered year. Montana Department of Natural Resources and Conservation (DNRC) staff review and rank proposals from public entities and then present a list of projects recommended for funding to the Legislature during the regular legislative session. Recommendations for the 2007 legislative session are contained in this report.

This biennium, grants of up to $10,000 each were available to fund project planning for the development of renewable resource projects. Applications that satisfied project and applicant eligibility criteria were funded on a first come, first served basis.

Irrigation Development Grants were also available this biennium. Both private and public entities are eligible to apply for grants of up to $15,000 per irrigation project.

Private entities are also eligible for both grant and loan funding for water-related projects under the Renewable Resource Grant and Loan Program. Montana's Constitution prohibits the Legislature from appropriating funds directly to private entities. Therefore, selection of projects occurs under a different process that involves review by DNRC staff and final approval by DNRC's director. Loan applications from private entities may be submitted anytime during the biennium. Private grants for water resource development or improvements are limited to $5,000 or 25 percent of the project's cost, whichever is less.

CHAPTER I

The Renewable Resource Grant and Loan Program

Background

The former Renewable Resource Development program was established by the Legislature in 1975 to promote the development of Montana's renewable resources. Funds generated by the use of nonrenewable mineral resources were pledged toward the development of more sustainable resource-based industries. Only governmental entities were eligible to apply for funding. Funds were provided for the purchase, lease, planning, design, construction, or rehabilitation of projects that conserved, managed, developed, or preserved land, water, vegetation, fish, wildlife, recreation, and other renewable natural resources.

The former Water Development Program was established by the Montana Legislature in 1981 to promote and advance the beneficial use of water, and to allow Montana's citizens full use of the state's water by providing grants and loans for water development projects and activities. Under the Water Development Program, both governmental entities and private persons were eligible to apply for funding.

In 1993, the Renewable Resource Development program was combined with the Title 85 Water Development Program. The role of the DNRC under Title 85 was expanded to provide for DNRC's coordination of the development of the state's renewable resources. The Resource Development Bureau (RDB) of DNRC thus assumed responsibility for administering the RRGL program as stipulated under Title 85, part 6, MCA. Combining the two programs streamlined program administration but did not change applicant and project eligibility criteria.

Purpose

The purpose of the RRGL program is to further the state's policies, set forth in Section 85-1-101, MCA, regarding the conservation, development, and beneficial use of renewable resources. The goal of the program is to invest in renewable natural resource projects that will preserve the economic and other benefits of the state's natural heritage for the citizens of Montana.

Project and Applicant Eligibility

Grants and loans are available for projects that conserve, manage, develop, or preserve the state's water, land, vegetation, fish, wildlife, recreation, and other renewable resources. The majority of projects funded under this program are water resource projects, but forestry, soil conservation, and solid waste projects have received past funding. Project funding is available for construction, research, design, demonstration, and planning. Watershed projects that preserve and improve water quality and projects that help plan for future management and protection of water sources (such as groundwater assessment studies) have received funding in the past. Chapter VII of this report provides more examples of previous public grants and projects funded by the Legislature.

Private Entities

Funding is also available to private entities. These applicants include individuals, associations, partnerships, for-profit corporations, and not-for-profit corporations. Funding for private grant projects is limited. In 2001, the Legislature appropriated $100,000 for grants to private entities. By law, grant funding for a single project may not exceed 25 percent of the total estimated cost, or $5,000, whichever is less. Statute provides that grants and loans may be made to private entities for water-related projects that conserve, manage, use, develop, or preserve the state's water. Only water-related projects may be funded. They must have quantifiable benefits that will exceed costs. Projects must also provide public benefits in addition to any private benefits. Applicants must hold or be able to acquire all necessary lands, other than public lands, and interests in the lands and water rights necessary for the construction, operation, and maintenance of the project.

Private grant and loan applications are managed under a process separate from state and local government entities. Montana's Constitution prohibits the Legislature from appropriating funds to a private entity directly.

Therefore, funds appropriated by the Legislature are used to issue individual awards to private grantees. Criteria for the award of funds to private entities are specified in the law. Each application is reviewed and, based on statutory criteria, funding recommendations are made to the DNRC director. The director has final authority over grants to private entities.

Irrigation system improvements, such as the conversion from flood irrigation to sprinkler irrigation, are the most common type of projects funded through private loans. Projects to convert to gravity flow irrigation systems are another typical project. Loans have also been provided for the development and improvement of rural water supply systems. Chapter IV of this report provides more examples of previously funded private loan projects. Private loans must be secured with real property. Projects not water related or unable to provide real property to secure a loan have not been funded. Irrigation water users associations have applied for loans in the past but have not qualified for funding because the association had no common property that could be offered as security.

Loans are made only to private applicants who are credit worthy and able and willing to enter into a contract for a loan repayment.

Planning Grants

Project planning grants provide up to $10,000 to governmental entities for completion of preliminary engineering, design, and feasibility analysis for renewable resource projects. The application requires applicants to explain how the project would contribute to the conservation, management, development, or preservation of renewable resources in Montana. The grants are given on an “open-cycle” basis. The 59th Legislature appropriated $300,000 for planning grants for FY 2006 and 2007. Chapter VIII of this report provides information about grants awarded for these years.

Emergency Grants

Statute allows DNRC to request up to 10 percent of the funds available for grants in a biennium to use for emergency grants. DNRC may provide up to $30,000 for a total of $100,000 to governmental entities to resolve water-related emergencies. Emergency funds may be granted for projects which, if delayed until the next regular legislative session, would result in substantial damages or legal liability. Requests for emergency funds are reviewed by DNRC staff and approved by the DNRC director. Chapter VI of this report provides information about applications for emergency assistance received in 2005 and 2006.

Funding Limitations

The law does not impose specific limitations on the amount of grant funding that the Legislature may provide for renewable resource projects proposed by governmental entities. Grant recommendations presented to the Long-Range Planning Subcommittee by DNRC are for limited amounts. These limits are consistent with limits imposed by the Legislature in the past and have been imposed to obtain optimal public benefit from the investment of public funds. Guidelines used to develop funding recommendations were developed with input from the Long-Range Planning Subcommittee. Proposed funding levels do not constrain the Legislature’s ability to appropriate grants and loans in amounts deemed appropriate based on testimony presented in legislative hearings and consistent with current legislative priorities.

Grants to private entities are limited by law to 25 percent of the project cost. Loans to private entities may not exceed the lesser of $200,000 or 80 percent of the fair market value of the security given for the project.

Funding Authority

Over $4 million is normally available over the biennium for grants to public entities for renewable resource projects. The 59th Legislature appropriated an additional $600,000 for grants for the 2007 biennium, for a total of $4.6 million available for grants. An additional $300,000 was appropriated for planning grants. The loan program is funded through the issuance of general obligation and coal severance tax bonds. These private loans are primarily for irrigation projects.

Program Implementation

Part 6 of Title 85 specifies DNRC's role in the management of the RRGL program; 85-1-605, MCA, allows DNRC to make project-funding recommendations only. The Legislature approves by appropriation the actual awards of those grants and loans to governmental entities that it finds consistent with the policies and purposes of the program. In presenting recommendations to the Legislature, DNRC provides information about each project for legislative consideration. All public grant projects are ranked by DNRC to show the Legislature the potential value of a given project compared to all other grant projects requesting funds. Grant projects that do not meet minimum technical and financial standards are not recommended by DNRC for funding. All recommendations made by DNRC may be rejected by the Legislature in favor of other considerations that it holds as higher priorities. Once the Legislature makes an award, DNRC manages the authorized grants and loans according to conditions set out in the DNRC report to the Legislature and in the legislative appropriations bill.

Acting within the limits of the authority provided by statute, DNRC provides the staffing necessary to administer state and local government assistance under the RRGL program. Each legislative session, members of the Long-Range Planning Subcommittee review the funding recommendations provided by DNRC. In response, the committee provides DNRC direction for the future.

Statute clearly prescribes the DNRC role in the administration of grants and loans to private entities; 85-1-606-614, MCA, is specific with respect to the parameters for the award of these funds. DNRC is directed to publicize statutes and rules governing these grants and loans and to set application deadlines. Only water-related projects are eligible. Additional eligibility criteria and the criteria used for project evaluation are set out in 85-1-609 and 610, MCA.

Rule-Making Authority

DNRC's role of administering the RRGL program is limited to a coordinating role. Limited by its authority to adopt rules, DNRC cannot expand or limit the mission of the RRGL program beyond legislative intent. DNRC does not have the authority to limit the amount of public grants or to narrow the range of eligible grants based on DNRC priorities. Title 85, MCA, directs DNRC to adopt rules that prescribe the application fee and content for grant and loan applications. DNRC also determines the ranking criteria used to evaluate and prioritize public grant applications and the process for awarding grants and loans to private entities according to statutory criteria. DNRC authority provides for the servicing of loans and determination of the terms and conditions for making grants and loans.

Program Goals

DNRC's goals for administering the RRGL program are carried out through solicitation of applications; evaluation of applications to provide the Legislature with a basis for the selection of projects that best support the purposes and stipulations of Title 85, MCA; and administration of grants and loans to comply with conditions of the authorization and applicable laws.

DNRC seeks to:

1. Inform the public and private sectors that grant and loan funding for water and other renewable resource projects is available, that certain applicant eligibility criteria for obtaining funds exist, and that projects that meet the purposes of Title 85, MCA, qualify for funding. To promote the program, DNRC provides specific information:

    a. about the grant and loan program to state and local governmental entities most likely to sponsor projects eligible for funding. Information is provided through press releases, news articles, brochures mailed directly to potential applicants, and workshops conducted in communities across the state.

    b. to targeted private entities to obtain applications for grant funds that will result in significant public benefit. Information is provided through press releases, news articles, and direct contact.

2. Coordinate with other state and federal agencies to provide information about government funding sources for water and other renewable resource projects, to facilitate a uniform application process, and to award funds without duplication.

3. Solicit public comment and suggestions for improvements to the program through administrative rule-making and legislative processes, during the solicitation for grant applications, and throughout the review of projects for funding.

4. Evaluate grant projects on the basis of technical merit and the resource benefits established in statute.

5. Effectively administer grants and loans to ensure that funds are used for allowable costs and that projects are executed in accordance with conditions set by the Legislature and in compliance with Title 85, MCA, and other applicable laws, without undue burden to the recipient.

6. Offer loans at the most affordable rates available through the sale of public bonds.

7. Adequately secure loans to protect the investment of public funds.

8. Advise the Legislature concerning the DNRC efforts to effectively administer the program according to statute and legislative intent.

CHAPTER II

Renewable Resource Grants to Public Entities

Application Administration and Project Review Procedures

DNRC's RDB accepts applications for public grants and loans that are submitted or postmarked by May 15 of each even-numbered year. A $250 application fee is required with each application. Exceptions are made for organizations that also provide voluntary expert review of DNRC grant applications. State agencies and units of the university system or other organizations that contribute to DNRC's extensive grant review process may request an application fee waiver.

Project Solicitation

Project applications are solicited broadly because DNRC seeks to maintain the competitive nature of the program. Those projects that most closely meet statutory priorities rank the highest and are most likely to rank above the cut-off point for available funding. Projects that do not rank competitively and fall below the projected funding line are less likely to receive legislative approval.

An extensive mailing list is used to promote the program and to solicit applications from eligible applicants. Mailing lists were originally obtained from divisions within DNRC and other state agencies. Included are contacts from the university system, state agencies, municipalities, environmental organizations, water users associations, irrigation districts, water and sewer districts, Tribal leaders, conservation districts, and federal agencies.

Promotion for the 2006 application cycle began with press releases in February. The press releases were sent to all Montana daily newspapers and provided general program information, a telephone number, e-mail address, and address to request more information and application forms and guidelines.

Eighty applications were received for this cycle. Funding requests totaled $7.6 million. In the previous cycle, 63 applicants requested $5.5 million in grant funding.

The application for this cycle requested the following information:

- A proposal abstract describing the project's merits.
- A technical narrative to describe the proposal's purpose, project history, and prior efforts; specific goals and objectives, as well as a discussion of project alternatives; technical documentation to support the technical narrative.
- A financial narrative and budget forms describing the funding structure.
- Affordability data, used to evaluate the local financial commitment and ability to pay of applicants with the potential to generate revenue through fees or taxes.
- A project management plan which outlines the steps that will be made to ensure successful project implementation.
- A discussion of the public and natural resource benefits achieved by the proposed project.
- An environmental checklist that provides information necessary to assess the extent of any adverse environmental impacts that may occur as a result of the project.

Application Review

All applications received by the deadline are evaluated for completeness. Those missing documentation, application fees, or other basic requirements are notified and provided time to submit additional material. Applications are then distributed to a team of key reviewers for evaluation. Figure 1 shows the flow of the grant application review and ranking process.

To review applications for the 2006 cycle, DNRC assembled a technical review team of 18 key reviewers. Key reviewers included staff from other divisions within DNRC and contracted private engineering firms. Each key

reviewer was asked to coordinate the review of up to five projects. Projects are assigned to reviewers based on the reviewer's area of expertise. Key reviewers are given information about the program, application materials, and guidelines for reviewing applications.

DNRC's technical review team evaluates each application to ensure that the proposal is technically and financially feasible. During project review, additional detailed technical and financial information may be requested. With the results of their own evaluations and comments from agencies and outside experts, key reviewers assess and document the merits of each proposal based on standard review criteria outlined in the ranking form.

Each project is evaluated for the potential to cause adverse environmental impacts. In the event that long-term environmental impacts could occur as a result of the project, contingencies are attached to the funding recommendations to minimize impacts and to ensure that appropriate steps are taken to protect the environment.

Concerns were raised in the 2006 ranking session regarding project budgets containing large federal grants not yet obtained. DNRC recognizes these concerns and will make provisions to initiate contracts with these projects within the biennium. If the project has not received the required matching funds by December 2008, DNRC will review the proposed budget. If it is determined that the match funding will not be available in the near future or a phased approach will not be workable, the grant will revert to the RRGL account and the next project on the ranked list will receive funding.

State law requires DNRC to solicit views of interested and affected parties. Local, state, and federal agencies, environmental groups, private organizations, and universities are solicited for input during the technical review of applications. Guidelines, developed specifically for application review, are used to provide a consistent basis for reviewing applications.

Project Ranking Criteria

To obtain an objective evaluation of all applications, DNRC developed a standard ranking form containing review instructions and guidelines. Each key reviewer completes a ranking form for each application to document the merits of the proposal and the resulting score.

Each key reviewer assigns a score to reflect project merit under the following five primary categories:

1. Financial Feasibility (-100 points)

   Financial feasibility is determined based on information included in the application. DNRC evaluates the financial feasibility of the proposed project or study based on the budget submitted with the application, the affordability of the project to the users, and the feasibility of the proposed funding scenario. Deficiencies in the financial plan are determined and could result in the loss of up to 100 points.

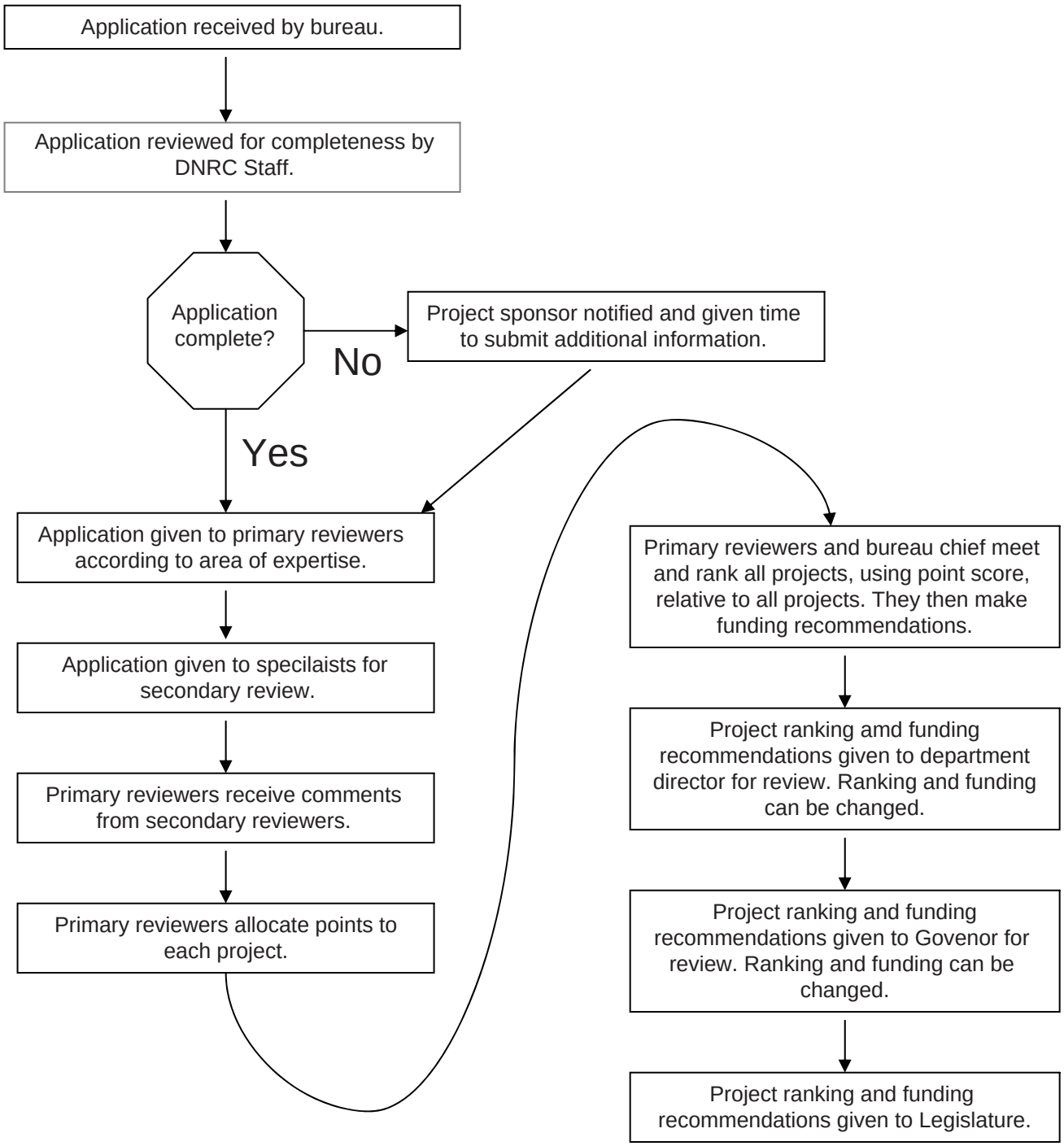
2. Adverse Environmental Impact (-100 points)

   Each application includes an environmental evaluation prepared by the applicant or its consultant. In the case of public facility project applications, the environmental evaluation is part of the Uniform Application and is reflected in the Preliminary Engineering Report (PER). Short-term impacts, including temporary construction impacts, should be addressed as well as long-term impacts, both positive and negative. Inadequately evaluating environmental impacts, or selecting alternatives which will result in adverse environmental impacts, could result in the loss of up to 100 points.

3. Project Management and Implementation (-100 points)

   Each application includes a project management and implementation plan. DNRC evaluates the plan to determine the adequacy of the applicant to manage or provide for the management of the proposed project, including records management and grant and loan administration. Specific areas evaluated include staffing and coordination, public involvement, and contract management (including the management of all grant

FIGURE 1 Flow Chart of Grant Application Review and Ranking Process



agreements), contracts with consultants, and construction contracts. Deficiencies in project management and implementation could result in the loss of up to 100 points.

4. Technical Feasibility (400 points)

Outlines are included in the application guidelines for the Technical Narrative or, in the case of public facility projects, the PER. To facilitate the review of the Technical Narrative or PER, it is recommended that these outlines be followed in preparing the application. Each application is evaluated on the basis of the following criteria:

A. Compliance with the prescribed outline and required information;

B. Adequacy of the alternatives analysis;

C. Adequacy of cost estimates for potential alternatives and the preferred alternative;

D. Soundness of the basis used in selecting the preferred alternative;

E. Feasibility of the project's implementation schedule; and

F. The quality of supporting technical data submitted with the application. The Technical Narrative or, in the case of a public facility project application, the PER provides DNRC with the information used to evaluate the technical feasibility of the proposed project and could result in the award of up to 400 points.

5. Resource and Citizen Benefits (600 Points)

As stated in 85-1-601, MCA, the purpose of the RRGL program is to further the state's policies set forth in 85-1-101, MCA, regarding the conservation, development, and beneficial use of water resources and to invest in renewable natural resource projects that will preserve for the citizens of Montana the economic and other benefits of the state's natural heritage. Resource and citizen benefits of proposed projects are evaluated by DNRC and could result in the award of up to 600 points. Resource and citizen benefits associated with each application are evaluated on the basis of the following criteria:

A. Renewable Resource Benefits

1) Resource conservation. Will the project ensure measurable future renewable resource benefits through implementation of new or improved efficiencies and utilization practices? Will it improve water-use efficiency through installation of new or improved water meters or other measuring devices?

2) Resource development. Will the project provide new benefits or enhance existing benefits through development of a renewable resource? Will it support the development of state, Tribal, or federal water projects including regional water systems? Will it develop off-stream or tributary water storage or develop hydropower?

3) Resource management. Will the project improve the measurable benefits of a renewable resource through better stewardship or other improved use of the resources?

4) Resource preservation. Will the project protect and thereby preserve the existing quality of a renewable resource? Will it reduce agricultural chemical use or prevent point sources of pollution?

B. Citizen Benefits and Public Support

1) Multiple uses. Will the project provide or enhance natural resource-based recreation? Will it enhance Montana's fisheries or wildlife habitat?

2) New and permanent jobs. Will the project directly result in new permanent jobs?

3) Public support. Does the application include documented public support? Does the application contain letters of support? Have citizen groups (e.g., watershed councils, sportsmen groups, development councils) enlisted support for the project? Have public meetings been conducted (attach attendance lists)?

After each key reviewer determines the score for assigned projects, all of the key reviewers and the bureau chief meet to discuss the projects and scores proposed. During this process, the key reviewer provides a short presentation about each project reviewed and the score given. After all projects are presented, the individual scores for each category on the scoring sheet are discussed. The team then decides the scores each project should receive in relation to all projects. Discussion by the team reduces inconsistencies between scores given by individual reviewers. Final team scores are recorded on a ranking spreadsheet to document the ranking process.

DNRC's ranking system is used to determine the relative merit of every proposal submitted for grant funding. Ranking scores are used as a guide for the staff to select projects that best serve the program's objectives as stipulated by statute and to summarize information for DNRC's director. Proposal recommendations are presented to the Governor for grant funding in the order DNRC staff rank them. Ranking scores are not binding. Either DNRC's director or the Governor may make adjustments to the recommendations prepared by DNRC to reflect their assessment of natural resource and other policy priorities. Based on the Governor's priorities, an appropriations bill is drafted and introduced to the Legislature. Actual funding decisions are made by the Legislature. Not bound by DNRC's review criteria or the Governor's final ranking, the Legislature ultimately authorizes funding for the projects in the order of priority and in the amounts it judges will best serve the state.

Funding Recommendations

All feasible grant requests are ranked according to standard criteria to select those that most efficiently use the state's natural resources in accordance with statutory guidelines. Then, in conjunction with its recommendation for funding priority, DNRC makes its recommendations concerning the amount of funding to be awarded each project (see Figure 2). The 2006 grant applications recommended for funding during the 2009 biennium are illustrated by project type in Figure 3.

With the Governor's approval, final funding recommendations are presented to the Legislature as part of this report. These recommendations do not impose limit on the amount of funding the Legislature may provide to any governmental entity for a single grant project.

Although grant funding for public projects is not limited by statute, in the past the Legislature has limited its grant funding awards to a maximum of $100,000 per project. This policy reflects the Legislature's interest in providing funding for a large number of projects. This policy prompts the leveraging of additional grants, loans, and in-kind services and encourages greater geographical distribution of limited grant funds.

Project Management

After an appropriations bill is enacted to authorize grants and loans, DNRC notifies applicants of their funding status. Sponsors of funded projects are reminded that work on their projects may not begin before entering into a grant or loan agreement with DNRC. DNRC does not reimburse any project costs incurred before the legislative authorization is given or before a formal funding agreement is executed.

Project Monitoring

Procedures for monitoring projects are driven by a project grant contract agreement between DNRC and the project sponsor. The equivalent of two full-time staff administer the 80 or more active construction, planning, research, and public information grants.

DNRC's goal is to make site inspection visits to all projects during the construction phase. Site visits are made to spot check for problems or to respond to a request for assistance from the project sponsor. Budget and staffing constraints preclude DNRC's site involvement at every project site.

Grant agreements, as with contracts used for DNRC's other state and federal grant programs, require quarterly progress reports, expenditure reports, and a final report. During a project's contract term, the project sponsor must submit quarterly reports to DNRC. These reports must reflect the percentage of the project completed, the project costs to date, any problems encountered, and the need for any agreement amendment. Projects are closely monitored each quarter when quarterly reports are submitted. Program staff document decisions and conversations that affect ongoing projects, make notes to the file, and document important conversations with correspondence. Amendments to grant agreements are prepared and issued in response to any problems that require changes to the project's time line or budget.

Project sponsors submit claims and obtain reimbursement of allowable costs from DNRC. Invoices may be submitted monthly, and all costs must be supported by an invoice or receipt.

Project Evaluation

Through its ongoing monitoring efforts, DNRC evaluates grants funded under the RRGL program. Upon project completion, DNRC requires submission of a final project report to document project history and the quantifiable results of the expenditure of grant dollars. This report summarizes grant expenditures, documents the work accomplished, and compares project objectives as presented to the Legislature with final projects results. Evaluation through a final project report enables DNRC to measure how well the projects implements the program goals of conserving, developing, managing, and preserving Montana's renewable resources. Projects are considered successful if they complete the scope of work outlined in the grant agreement.

FIGURE 2 2006 Grant Applications by Order of Ranking Recommendation

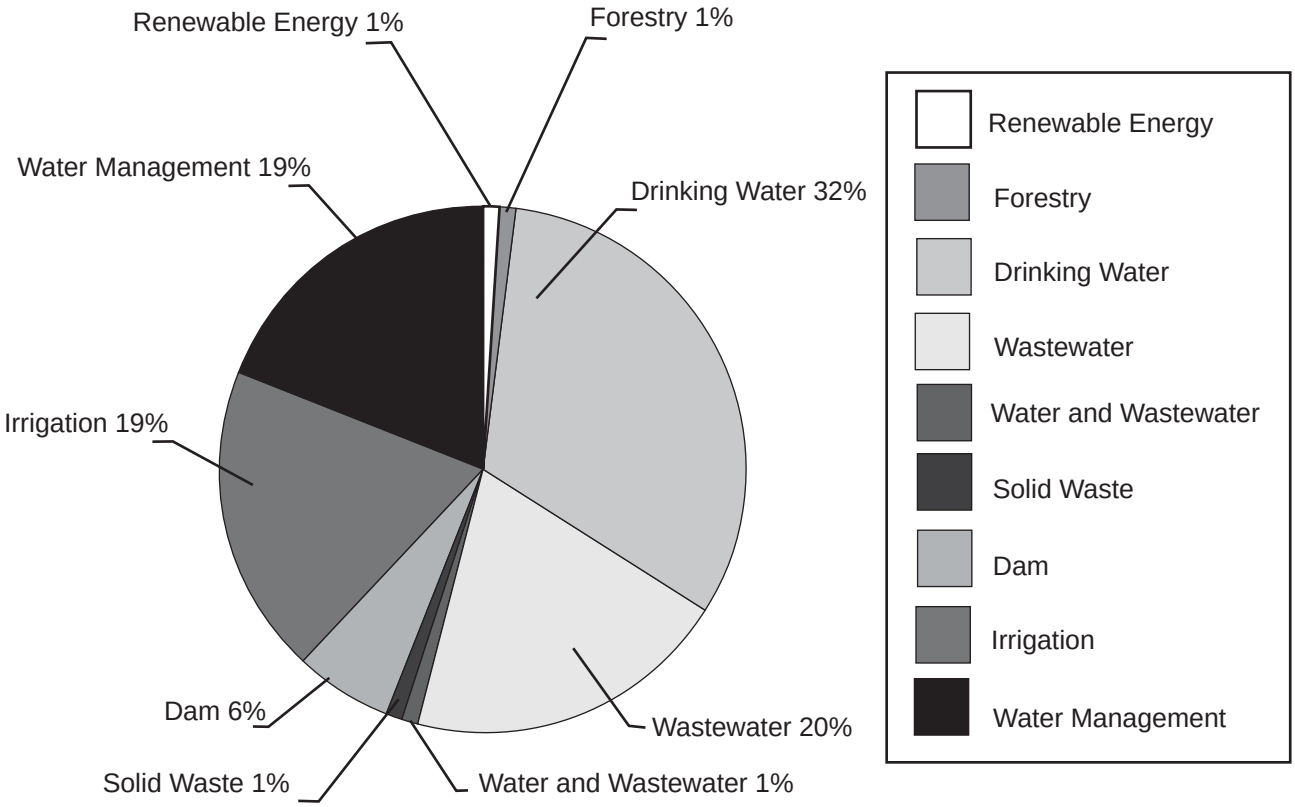
Ranked Order	Project Sponsor/ Project Name	Recommended Grant Funding	Cumulative Recommended	Recommended Loan Funding
1	**Green Mountain Conservation District** Crow Creek Restoration Project	$70,599	$70,599	
2	**Twin Bridges, Town of** Twin Bridges Wastewater System Improvements	$100,000	$170,599	
3	**Fort Peck Tribes** Fort Peck D-4 Drain Water Conservation Improvements	$100,000	$270,599	
4	**North Powell Conservation District** Blackfoot Drought and Water Conservation Project	$84,347	$354,946	
5	**Bainville, Town of** Bainville Wastewater System Improvements	$100,000	$454,946	
6	**Petrolia Irrigation District** Petrolia Irrigation Rehabilitation Project	$100,000	$554,946	
7	**Montana Department of Natural Resources and Conservation** Ackley Lake Dam Rehabilitation	$100,000	$654,946	$200,000
8	**Cut Bank, City of** Cut Bank Water System Improvements	$100,000	$754,946	
9	**Whitehall, Town of** Whitehall Wastewater System Improvements	$100,000	$854,946	
10	**Montana Department of Natural Resources and Conservation** East Fork Siphon Replacement and Main Canal Lining Project	$100,000	$954,946	$400,000
11	**Loma County Water and Sewer District** Loma Water System Improvements, Phase 1	$100,000	$1,054,946	
12	**Panoramic Mountain River Heights County Water District** Panoramic Mountain River Heights Water System Improvements	$100,000	$1,154,946	
13	**Montana Department of Natural Resources and Conservation** Smith Creek Canal Seepage Abatement and Rehabilitation	$100,000	$1,254,946	$50,000
14	**Goodan-Keil County Water District** Goodan-Keil Water System Improvements	$100,000	$1,354,946	
15	**Montana Department of Natural Resources and Conservation** Middle Creek Dam–Automated Instrumentation	$100,000	$1,454,946	
16	**Polson, City of** Polson Water System Improvements	$100,000	$1,554,946	
17	**Hill County** Beaver Creek Dam Seepage Control Berm	$100,000	$1,654,946	
18	**Gallatin County, Hebgen Lake Estates RID 322** Hebgen Lake Estates Wastewater System Improvements	$100,000	$1,754,946	
19	**Three Forks, City of** Three Forks Wastewater System Improvements	$100,000	$1,854,946	
20	**Mineral County Saltese Water and Sewer District** Saltese Wastewater System Improvements	$100,000	$1,954,946	
21	**Carbon Conservation District** Hydrogeology and Water Balance of the East/West Bench Aquifers, Phase 1	$100,000	$2,054,946	

Ranked Order	Project Sponsor/ Project Name	Recommended Grant Funding	Cumulative Recommended	Recommended Loan Funding
22	**Fergus County Conservation District** Upper and Lower Carter Ponds Dam Reconstruction	$100,000	$2,154,946	
23	**Brady County Water and Sewer District** Brady Wastewater System Improvements	$100,000	$2,254,946	
24	**Beaverhead Conservation District** Big Hole Ditch Improvement Project	$99,355	$2,354,946	
25	**Superior, Town of** Superior Water System Improvements	$100,000	$2,454,946	
26	**Sunny Meadows Missoula County Water and Sewer District** Sunny Meadows Water System Improvements	$100,000	$2,554,946	
27	**Tri County Water and Sewer District** Tri County Water System Improvements	$100,000	$2,654,946	
28	**Philipsburg, Town of** Philipsburg Wastewater System Improvements	$100,000	$2,754,946	
29	**Fort Peck Tribes** Fort Peck 58 Main Check Structure Replacement for Water Management	$100,000	$2,854,946	
30	**Sanders County** Eliminating Failed and Obsolete Septic Systems in Sanders County	$100,000	$2,954,946	
31	**Malta Irrigation District** Dodson North Canal Regulating Reservoir	$100,000	$3,054,946	
32	**Red Lodge, City of** Red Lodge Water System Improvements	$100,000	$3,154,946	
33	**Elk Meadows Ranchettes County Water District** Elk Meadows Water System Improvements	$100,000	3,254,946	
34	**Rae Water and Sewer District** Rae Water System Improvements	$100,000	$3,354,946	
35	**Stillwater Conservation District** Stillwater-Rosebud Watershed, Surface Water/Groundwater Interaction	$100,000	$3,454,946	
36	**East Bench Irrigation District** East Bench Irrigation District Canal Lining	$100,000	$3,554,946	
37	**Dayton Lake County Water and Sewer District** Dayton Wastewater System Improvements	$100,000	$3,654,946	
38	**Milk River Irrigation Project Joint Board of Control** St. Mary Canal, Halls Coulee Drop 3, Plunge Pool Concrete Repair	$100,000	$3,754,946	
39	**Yellowstone Conservation District** Modeling Aquifer Responses to Urban Sprawl, West Billings Area	$59,991	$3,814,946	
40	**Ravalli County** Improved Resource Protection, Floodplain Hazard Mapping, and Land-Use Planning for Ravalli County	$100,000	$3,914,946	
41	**North Valley County Water and Sewer District** North Valley County Water System Improvements	$100,000	$4,014,946	
42	**Sheridan, Town of** Sheridan Wastewater System Improvements	$100,000	$4,114,946	
43	**Neihart, Town of** Neihart Water System Improvements	$100,000	$4,214,946	
44	**Greenfields Irrigation District** Muddy Creek Wastewater and Erosion Reduction	$100,000	$4,314,946	

Ranked Order	Project Sponsor/ Project Name	Recommended Grant Funding	Cumulative Recommended	Recommended Loan Funding
45	**Bynum Teton County Water and Sewer District** A New Source of Drinking Water for Bynum	$100,000	$4,414,946	
46	**Whitefish, City of** Whitefish Wastewater System Improvements	$100,000	$4,514,946	
47	**Power Teton County Water and Sewer District** Power Teton Water System Improvements	$100,000	$4,614,946	
48	**Sidney Water Users Irrigation District** Sidney Water Users Increasing Irrigation Efficiency, Phase 2	$100,000	$4,714,946	
49	**Jordan, Town of** Jordan Wastewater System Improvements	$100,000	$4,814,946	
50	**Beaverhead County** Blacktail Deer Creek Flood Mitigation Project	$100,000	$4,914,946	
51	**Seeley Lake Missoula County Water District** Seeley Lake Water System Improvements	$100,000	$5,014,946	
52	**Manhattan, Town of** Manhattan Water System Improvements	$100,000	$5,114,946	
53	**Lewis and Clark County** Lewis and Clark Fairgrounds, Dunbar Area Water System Improvements	$100,000	$5,214,946	
54	**Columbia Falls, City of** Columbia Falls Wastewater System Improvements	$100,000	$5,314,946	
55	**Hamilton, City of** Hamilton Wastewater System Improvements	$100,000	$5,414,946	
56	**Hysham Irrigation District** Hysham Main Ditch Improvements	$100,000	$5,514,946	
57	**Shelby, City of** Shelby Water System Improvements	$100,000	$5,614,946	
58	**Montana Department of Natural Resources and Conservation** Community Tree-Planting Grants	$100,000	$5,714,946	
59	**Ronan, City of** Ronan Wastewater System Improvements	$100,000	$5,814,946	
60	**Pondera County Conservation District** Marias River Watershed Baseline Assessment	$100,000	$5,914,946	
61	**Sheridan County** Raymond Dam Rehabilitation	$100,000	$6,014,946	
62	**Montana Department of Environmental Quality** Geothermal Assessment and Outreach Partnership	$99,963	$6,114,909	
63	**Thompson Falls, City of** Thompson Falls Water System Improvements	$100,000	$6,214,909	
64	**Missoula County Lolo RSID 901** Lolo Wastewater System Improvements, Phase 2	$100,000	$6,314,909	
65	**Chester Irrigation District** Chester Irrigation Project: Phase 2, Water Service Contract Application	$100,000	$6,414,909	
66	**Pinesdale, Town of** Pinesdale Water System Improvements	$100,000	$6,514,909	
67	**Ekalaka, Town of** Ekalaka Water and Wastewater System Improvements	$100,000	$6,614,909	
68	**Sweet Grass Conservation District** West Boulder Point of Diversion Rehabilitation Project	$44,500	$6,659,409	

Ranked Order	Project Sponsor/ Project Name	Recommended Grant Funding	Cumulative Recommended	Recommended Loan Funding
69	**Livingston, City of** Glass Pulverizer for the City of Livingston	$100,000	$6,759,409	
70	**Montana State University** Channel Response Assessment for the Upper Blackfoot	$100,000	$6,859,409	
71	**Darby, Town of** Darby Water System Improvements	$100,000	$6,959,409	
72	**Sunburst, Town of** Sunburst Back-up Water Supply Wells	$99,236	$7,058,645	
73	**Geyser Judith Basin County Water and Sewer District** Geyser Water System Improvements	$100,000	$7,158,645	
74	**Black Eagle Water and Sewer District** Black Eagle Water System Improvements	$100,000	$7,158,645	
75	**Glacier County Conservation District** Marias River Bridge Road Stabilization	$100,000	$7,358,645	
76	**Buffalo Rapids Project, District 2** Open Lateral Conversion to Pipeline	$100,000	$7,458,645	
77	**Buffalo Rapids Project, District 1** Open Lateral 34.5 Conversion to Pipeline	$100,000	$7,558,645	
	TOTAL FUNDS RECOMMENDED	$7,558,645		$650,000
Projects below this line were not recommended for funding				
	Deer Lodge Valley Conservation District Upper Clark Fork River Habitat, Water Quality, and Restoration Enhancement Project	$100,000		
	Meagher County Conservation District Hydrologic Investigation of the Smith River Watershed	$100,000		
	Sunset Irrigation District Gravity Flow Irrigation Pipelines	$100,000		$1,465,265

FIGURE 3 Requested Funding by Project Type



Project No. 1

Applicant Name	Green Mountain Conservation District (GMCD)		
Project Title	Crow Creek Restoration Project		
Amount Requested	$	70,559	Grant
	$	5,026	Applicant, In-Kind
Other Funding Sources	$	13,537	Avista Corporation
	$	7,477	Montana Department of Fish, Wildlife & Parks (DFWP), In-Kind
	$	13,750	U.S. Forest Service (USFS)
	$	7,250	USFS, In-Kind
Total Project Cost	$	117,599	
Amount Recommended	$	70,559	Grant

Project Abstract (Prepared and submitted by applicant)

The goal of the Crow Creek Restoration Project is to improve water quality and restore native fish populations in Crow Creek, a tributary to Prospect Creek, which flows into the Clark Fork River near the community of Thompson Falls. The project is on public land in the Lolo National Forest.

The project focuses on a section of Crow Creek where almost all riparian (streamside) vegetation was removed during construction of power lines. Vegetation removal has significantly impacted the stream's ability to function properly, including instability of the stream banks, over-widening of the channel, increased erosion, and reduced stream shading. Two invasive weed species now make up the majority of riparian vegetation, which has further diminished proper stream functioning. The proposed project will restore this section of Crow Creek by reconstructing the stream channel, implementing stream bank stabilization measures, and replanting the riparian area.

Because Crow Creek contains pure strain bull trout (listed as threatened under the Endangered Species Act) and westslope cutthroat trout (designated a Montana species of special concern) and lacks non-native fish competitors, it is a high priority for native fish protection efforts in the lower Clark Fork River system. The Prospect Creek Watershed Assessment recommends restoration of the stream channel and riparian area at the Crow Creek site as one of the highest priorities in the Prospect Creek drainage. The Lower Clark Fork River Drainage Habitat Problem Assessment ranks the Crow Creek site second for restoration of 40 sub-watersheds in the entire lower Clark Fork Basin.

While the Crow Creek project will result in site-specific benefits at the project site (approximately two acres), the project will also result in reconnecting healthy stream and riparian habitat upstream and downstream of the site, thereby re-establishing a corridor for native fish and improving overall fish habitat and water quality in the Crow Creek watershed (approximately 9,000 acres) and the Prospect Creek drainage (approximately 112,000 acres).

The following partners are participating with GMCD in this project: USFS, USFWS (in consultation with the USFS on endangered species benefits), DFWP, the Prospect Creek Watershed Council, the Lower Clark Fork Watershed Group, and Avista Corporation.

Technical Assessment

Project Background

The area provides habitat for numerous big game species as well as federally listed lynx, grizzly bear, and gray wolf. Native fish species include bull trout and the westslope cutthroat trout. Non-native fish species are not present in Crow Creek, making it a high priority for native fish restoration in the lower Clark Fork watershed. Local watershed groups rank the Crow Creek site as one of the highest priorities for restoration in the entire lower Clark Fork Basin.

Power line construction in the 1960s resulted in removal of trees and other woody vegetation along a portion of Crow Creek and subsequent invasion by weeds, primarily knapweed and reed canary grass. Construction activities led to stream bank instability, widening and braiding of the stream channel, increased sediment load, and lack of shading. The proposed project will reconstruct and rechannel the affected section of Crow Creek, restore the meander pattern of the creek, and stabilize the stream bank. Native vegetation will be planted in the riparian zone. Alternatives considered included revegatation alone, installing rock riprap to stabilize the stream bank, and channel reconstruction using native materials.

Technical Approach

The goals of the project are to improve water quality and restore native fish populations in Crow Creek.

The main components of the project include:

- Reconstructing 1,000 feet of stream channel just downstream from the confluence of the east and west forks of Crow Creek;
- Stabilizing the stream bank using root wads and log veins;
- Restoring native vegetation in the riparian zone through replanting;
- Establishing a monitoring program; and
- Working with land management agencies and area landowners on improved road and utility corridor maintenance.

Stream reconstruction will be completed in 2007, with all components of the project scheduled for completion in 2009. The preferred alternative—channel reconstruction combined with restoration of riparian vegetation utilizing native materials—was selected as the best way of returning Crow Creek to its historic condition and providing long-term fishery and water quality benefits. The final design for the preferred alternative has not been done and is part of the project being funded by the Avista Corporation.

Specific tasks to be accomplished:

- Prepare a final design plan (channel design criteria, sediment transport calculations, structure locations and type, cut and fill estimates) and obtain permits for restoring 1,000 feet of degraded stream channel in Crow Creek;
- Develop a Quality Assurance Project Plan (QAPP) for approval by the Montana Department of Environmental Quality (DEQ) that includes pre-project and post-project baseline monitoring;
- Develop a road and utility corridor maintenance program for the Crow Creek drainage in conjunction with Lolo National Forest and Bonneville Power Administration personnel;
- Reconstruct the channel in the degraded section of Crow Creek, stabilize the bank (using woody debris jams and log veins), enhance fish habitat (using root wads and woody debris jams), and revegatate the riparian area with plantings (alders, willows, red osier dogwood, and native grasses); and
- Evaluate water quality and fishery improvements and share this information through media outlets and public meetings.

Project Management

The project appears to have an adequate management team. The primary project manager will be the watershed coordinator for the GMCD. This individual has the experience and skills necessary to manage the contractors associated with the project. The GMCD administrator and treasurer/grant administrator will also be part of the management team. The project management budget is nearly 11% of the Renewable Resource Grant request. The GMCD and/or the design contractor will choose a qualified construction vendor and create a request for proposal (RFP) for a QAPP to be submitted to the DEQ. Opportunities for public involvement include GMCD monthly meetings advertised and open to the public, quarterly meetings of the Lower Clark Fork Working Group, and semiannual meetings of the Prospect Creek Watershed Council.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$7,684	$0	$0	**$7,684**
Professional & Technical	$13,365	$0	$33,290	**$46,655**
Construction	$49,510	$0	$13,750	**$63,260**
Total	**$70,559**	**$0**	**$47,040**	**$117,599**

The proposed budget is accurately presented and appears sufficient and reasonable to fund the project, although operation and maintenance costs associated with extensive vegetation plantings have been overlooked. Some of the plantings probably will not survive and will have to be replaced. The proposal includes generic cost estimates per foot for the various alternatives. It does not include a 20-year present worth analysis or a cost/benefit analysis. The USFS cash match of $13,750 has been secured.

Benefit Assessment

Primary benefits of the project include stream bank stabilization and reduced erosion in a degraded section of Crow Creek, which will preserve and enhance the downstream water quality of both Crow Creek and Prospect Creek. By restoring Crow Creek to its historic condition, the project will increase the ability of DFWP to manage the federally listed bull trout and the westslope cutthroat trout, a Montana species of special concern. Populations of both species can potentially be increased through habitat improvement. Additional benefits of the project include enhancing recreational opportunities (fishing) and serving as an example of how streams might be restored in other portions of the Lower Clark Fork River drainage.

Environmental Evaluation

Environmental impacts associated with the project were evaluated and no apparent adverse long-term impacts will result. There may be some short-lived turbidity increases due to construction activities, although these will likely be mitigated.

Funding Recommendation

The DNRC recommends grant funding of $70,559 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 2

Applicant Name	Twin Bridges, Town of		
Project Name	Twin Bridges Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	70,000	Applicant
	$	450,000	CDBG Grant
	$	850,000	STAG Grant
	$	750,000	TSEP Grant
	$	722,100	WPC SRF Loan
Total Project Cost	$	2,942,100	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Town of Twin Bridges is served by a central wastewater collection and treatment system originally constructed in 1963. The existing wastewater treatment facility was upgraded in 1991 by lining the two facultative lagoons, modifying piping, and installing a multi-level weir at the discharge to Bayers Ditch.

The existing treatment facility consists of two cells and has a detention time of about 129 days, neither meeting the Montana Department of Environmental Quality (DEQ) requirements. With the shortened detention times, marginally treated wastewater is discharged in Bayers Ditch, which meanders through agricultural land north of town. The existing discharge does not meet water quality standards for ammonia, resulting in ammonia toxicity in the receiving waters, which is harmful to fish, amphibians, and other aquatic life. The town has reached the 1993 nondegradation limits and will exceed nondegradation limits with any additional growth.

The proposed solution is to upgrade the existing discharging facultative lagoon system by adding a storage lagoon and spray irrigation system. The existing two-cell facultative treatment lagoons will continue to provide primary treatment. A storage cell with a synthetic liner will be constructed on property immediately south of the existing facultative treatment lagoons. Effluent will be applied to the agricultural land at agronomic rates from April through October. When required in the future, sludge will be removed and land-applied at a suitable site. The proposed system will eliminate the discharge to Bayers Ditch and the need for a Montana Pollutant Discharge Elimination System (MPDES) permit. The proposed project will allow for beneficial reuse of nutrient-rich effluent and will remedy the most significant public health and safety problems relating to wastewater treatment and disposal in Twin Bridges. The project will allow the town to better manage an existing natural resource and will result in adequate system capacity to serve the town through the planning period, with consideration for expected community growth.

Technical Assessment

Project Background

Twin Bridges has 206 households and is in Madison County along State Highway 287. The town's wastewater is treated in two undersized facultative lagoon cells. Anticipated residential and commercial growth from development of the old state orphanage in Twin Bridges will further stress the lagoon's capacity. Discharge from the lagoons enters Bayers Ditch in accordance with the town's latest MPDES permit. However, the town's new permit is expected to have additional limits on fecal coliform, ammonia, and nondegradation loads, thus requiring a higher degree of wastewater treatment than can be met by the existing facility. Some sewer main problems also exist.

Technical Approach

The preferred alternative is continued use of the facultative lagoon, with addition of an above-grade storage cell and a spray irrigation system for wastewater disposal. Because the proposed irrigation site east of town has a 200-foot buffer

zone, disinfection is not warranted. Implementation of the recommended alternative will eliminate the current surface water discharge, thereby improving both surface and groundwater quality and eliminating concerns about MPDES compliance. This alternative was also chosen because of ease in operation and because the wastewater effluent is put to beneficial use. Generally the wastewater collection system and lift stations are in good shape. However, flat slopes along Ninth Avenue need to be corrected. Various alternative sewer rehabilitation methods were considered, but because these methods cannot correct grade problems, open-trench technology is the only viable option.

Construction is slated to begin in May 2009 and end in September of the same year.

Specific tasks to be accomplished:

- Purchase land and secure easements for the storage cell and irrigation site;
- Construct a new storage pond and spray irrigation system;
- Construct 1,150 feet of eight-inch PVC gravity sewer main on Ninth Avenue; and
- Install two lift station alarm auto-dialers.

Project Management

The project engineer has already been selected and has considerable experience in administering grants and designing and constructing wastewater improvements. The town clerk, who has managed previous grant- and loan-funded projects, will be the fiscal contact. The town council and mayor will retain ultimate responsibility for the project. The project management plan spells out clear duties for each member of the management team.

The town will continue to conduct public meetings and council meetings open to the public. Attendees can voice their concerns about the proposed project during a public comment and question period. Residents will be notified before interruption of sewer service on Ninth Avenue where construction is scheduled.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$137,800	**$137,800**
Professional & Technical	$0	$0	$0	**$0**
Construction	$100,000	$0	$2,704,300	**$2,804,300**
Total	**$100,000**	**$0**	**$2,842,100**	**$2,942,100**

Four different funding scenarios were considered. The chosen funding package consists of a TSEP grant, an RRGL grant, a CDBG grant, a STAG grant, $70,000 in town reserves, and a WPC SRF loan. This funding package was chosen because the 20-year loan repayment period is the same as the design life of the improvements. Although complicated, the package is considered feasible. The STAG grant is less than $1 million and Twin Bridges is listed on the STAG project list. Therefore this STAG request is not unrealistic. However, if the STAG grant is not received, the town will apply for an ACOE 595 grant. If the ACOE 595 grant is not received, another attempt will be made for a STAG grant. Project phasing is not used, nor deemed necessary. The collection system component of the project is $109,000 and the lift station auto-dialers are $12,000. Separating these components from the treatment system improvements would not be much financial benefit.

After project completion the projected sewer user fee for each of the 206 homes in Twin Bridges is $37.97, a significant increase from the current rate of $19.05. The new rate includes $18.74 monthly for sewer debt repayment and $4.09 for additional operation and maintenance (O&M) costs. Conversion to the spray irrigation system will require increased labor and power costs for operation and maintenance of the treatment site lift station, irrigation pump, and irrigation pivot. The combined new water and sewer rate will be $63.22, which is 139% of the combined target rate for the town. With 51% LMI households in Twin Bridges, this is a significant burden.

Benefit Assessment

The major resource benefits are in resource management. Twin Bridges is waiting for its new discharge permit to be written. The town is exceeding the hydraulic loading of its existing lagoon cells and needs to make improvements. Estimating what the new permit will require and how to treat effluent to a sufficiently high quality is not an easy task. By changing the lagoon operation to spray irrigation, the town is better managing the wastewater effluent by putting it to a beneficial and more controllable use.

Secondary resource benefits result in resource conservation, development, and preservation. By relaying the sewer main on Ninth Avenue, the existing wastewater system can be kept in service. The two existing lagoon cells will be preserved as part of the new, improved facultative system with storage cell and spray irrigation. Development of irrigation facilities significantly improves water use efficiency.

Elimination of the wastewater discharge is a measurable benefit to the quality of the surface water and groundwater down-gradient of the lagoon cells. Water quality in Bayers Ditch will improve as a result of the elimination of the surface water discharge. Bayers Ditch flows through ranches and farm lands where water is used for stock and crop irrigation. Effluent high in ammonia, fecal coliforms, nitrogen, and phosphorus will no longer be discharged to Bayers Ditch. In addition to environmental pollution, a human health and safety concern is associated with the surface water discharge.

If the old Montana Children's Center is developed as planned, an estimated 30 to 40 new full-time jobs will be created. Without the wastewater improvements, long-term business development cannot occur. Extension of the sewer system to the center will be financed by the developers later. Growth from the center was incorporated into the preliminary wastewater treatment design.

Environmental Evaluation

The proposed wastewater treatment system improvements will have a net positive effect on the environment. Elimination of the current surface water discharge to Bayers Ditch, which runs dry part of the year, will prevent excess nutrient loading and fecal coliforms from reaching groundwater and surface water. The new storage cell will be located immediately adjacent to the existing lagoon, which is better environmentally than utilizing a new area. The spray irrigation will be designed for application at agronomic rates, which means the appropriate amount for the crop's rate of uptake. Sixty-six acres of farm land will be irrigated.

Short-term negative environmental concerns associated with construction, e.g., noise and dust, can be averted by using best management practices.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 3

Applicant Name	Fort Peck Tribes		
Project Name	D-4 Drain Water Conservation Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	4,382	Applicant, In-Kind
	$	8,510	Fort Peck Irrigation Project, Cash
	$	1,685	Fort Peck Irrigation Project, In-Kind
	$	85	Fort Peck Water Users Association, Cash
	$	2,388	Fort Peck Water Users Association, In-Kind
	$	8,000	Great Northern Development Corporation, In-Kind
Total Project Cost	$	125,050	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Fort Peck Tribes and the Fort Peck Water Users Association are working together to improve the beneficial use of the Fort Peck Irrigation Project. The proposed project will address issues of water conservation, water shortage in the eastern portion of the Wolf Point-Frazer Unit, and drainage issues in the area of Drain D-4.

Drain D-4 empties into the Missouri about seven miles west of Wolf Point, immediately after it passes underneath Lateral 42-M, carrying significant flow throughout the irrigation season. This project seeks to impound the flow of Drain D-4 with a riprap dam just before it empties into the Missouri and pump it back into Lateral 42-M. Drain D-4 has good storage potential at this location and only minor earthwork will be necessary. Preliminary studies show that at continuous pumping rates of an average of 10 cubic feet per second, approximately 1,800 to 3,600 acre-feet of water per year will be conserved within the Fort Peck Irrigation Project.

Major objectives addressed by this improvement include:

- Conservation of irrigation water for reuse;
- Increase of water supply for irrigation-classified tracts without suitable water supply, providing for better management of the system, and preserving the beneficial use of those farm lands;
- Supply of water for development of additional irrigated tracts currently idle; and
- Preservation of Missouri River water quality by reducing or eliminating agricultural drainage.

The proposed project is an important part of the improvement of the Fort Peck Irrigation System. Increased water supply will allow farmers to convert idle land to irrigated land and to retain the beneficial use of currently irrigated land. This will generate a greater revenue stream from farming which, in turn, has the potential to stimulate the area economy.

Technical Assessment

Project Background

The Fort Peck Irrigation Project (FPIP) is west of Wolf Point. The system was constructed in the early 1930s. This project is part of an overall effort to increase efficiency in the irrigation system. The source of water is the Missouri River.

Water shortages in a specific area of the eastern portion of the FPIP have been ongoing. A primary reason is the distance of the area from the river pump station as well as the length of the major lateral ditch serving the area. The D-4 drain is strategically located next to this lateral ditch and has carried large amounts of drainage water that could be impounded and pumped to the lateral to alleviate the shortages. Onsite measurements of the D-4 drain water flow must be conducted to verify the flow and volume of water available for reuse.

The most cost effective alternative for the irrigation water reuse project is installation of a membrane covered riprap dam to impound water in the D-4 drain along with a trailer-mounted pump. Other alternatives considered were different types of water impoundment dams and different types of pump systems.

Technical Approach

The preferred alternative for this project is to construct, in the D-4 drain, a dam consisting of a core of 12-inch diameter rounded rock riprap covered with a layer of six-inch diameter rounded rock riprap. A pre-manufactured impermeable membrane will be anchored on top of the riprap structure. Overflow will spill onto one side of the dam which will serve as a riprap apron. A single trailer-mounted pump and power unit will be positioned in the impoundment on a pre-cast ramp. Water will be pumped into an impact basin in the lateral ditch. A flow meter will be installed on the discharge pipe to measure flow and volume of water pumped. This design will allow the most flexibility as the trailer-mounted pump can be removed for storage and service. The riprap dam is also the most flexible alternative as it will allow for storm runoff flows in the D-4 drain outside the irrigation season or in the event of severe storm runoff. At the same time, it will act as a sediment filter to these flows into the river. It will also blend into the surrounding landscape. Overall this preferred alternative was the most effective from the major aspects considered ranging from facility flexibility, to lack of environmental impacts, to cost, to operational ease.

Specific tasks to be accomplished:

- Verify water flow and volume in the D-4 drain with a measuring device;
- Finalize design of the riprap dam and pump system installation; and
- Construct the riprap dam in the D-4 drain and install the pump system.

Project Management

The administrator of the Fort Peck Tribes Water Resources Department will act as project manager with final authority over payments, reports, and contracts. The Fort Peck Water Users Association business administrator will provide coordination with the grant administrator, Great Northern Development Corporation, the engineering consultant, and the construction contractor. The engineer will provide final design and oversight of construction activities. Public input will be provided at monthly Fort Peck Water Users Association meetings and project-specific public information meetings.

Upon award of this requested grant, site-specific data will be collected to verify flow and volume in the D-4 drain for final design. Upon completion of final design, the project will be ready to proceed.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$8,455	**$8,455**
Professional & Technical	$15,000	$0	$8,000	**$23,000**
Construction	$85,000	$0	$8,595	**$93,595**
Total	**$100,000**	**$0**	**$25,050**	**$125,050**

Based on the cost estimate provided in the application, the budget is sufficient to fund the proposed project. Unit costs used to develop the estimated cost of construction are reasonable, and a 10% construction contingency is included in the cost estimate. Justification for the proposed action as the most cost-effective approach is provided in the application.

Ninety-two users purchase water from the FPIP at a cost of $17.50 per acre. A total of 19,000 acres is under irrigation. This project will not cause an increase in the assessment.

Matching funds for this project are secure. If awarded, the project will be in position to start implementation in fall 2007.

Benefit Assessment

Resource conservation is the main renewable resource benefit associated with this project. The proposed project will conserve water through reuse of a minimum of 1,800 acre-feet of water currently drained from the irrigation system to the Missouri River. Approximately 1,200 acre-feet of this total will be used to develop 600 acres of new irrigated farm land. The remaining 600 acre-feet will allow improved water management in the system by supplying water to an existing 600 irrigated acres that currently experience water shortages. These acres will be preserved as irrigated farm land. Reuse will eliminate the discharge of farm chemicals and fertilizers contained in the water to the Missouri River.

Environmental Evaluation

Short-term negative impacts include dust, noise, and minor soil and vegetation disturbance during construction. Long-term positive impacts should occur from reuse of the drain water and reduction of the drain water flow to the Missouri River.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 4

Applicant Name	North Powell Conservation District (NPCD)		
Project Name	Blackfoot Drought and Water Conservation Project		
Amount Requested	$	84,347	Grant
Other Funding Sources	$	13,000	Blackfoot Challenge, Cash and In-Kind
	$	15,240	Blackfoot Drought and Water Conservation Committee, In-Kind
	$	2,682	Contractors, In-Kind
	$	23,378	319 Grants
	$	10,137	Landowners
	$	6,400	Natural Resources Conservation Service
Total Project Cost	$	155,184	
Amount Recommended	$	84,347	

Project Abstract (Prepared and submitted by applicant)

The Blackfoot Challenge (BFC) has engaged in drought management and water conservation in the Blackfoot watershed since 2000. In early 2006, the BFC began looking at ways to expand and further define irrigation efficiency in the basin. Funding is needed to carry out ongoing drought management efforts and to further develop a long-term water conservation program. As part of these efforts, conserving energy and increasing water use efficiency in irrigation systems is critical to keeping producer operational costs down, which helps preserve agricultural land use. As part of project implementation, the BFC felt that its ongoing drought management efforts, as well as general coordination of basin restoration activities, would be critical to ensure success. These findings led the BFC to pursue this grant application.

The NPCD and the BFC are co-sponsoring this project to:

- Implement drought response in the basin;
- Complete energy audits and maintenance evaluations to identify energy and water conservation measures in irrigation systems;

- Expand and improve ongoing soil moisture monitoring;
- Develop specific water conservation projects for implementation and inclusion in the Blackfoot Watershed Restoration Action Plan (Action Plan) and demonstrate restoration successes through long-term monitoring; and
- Provide management, coordination, and development services for new actions in the Blackfoot watershed.

Water and energy conservation are cornerstones of protecting the basin and its rural inhabitants. A total of $84,346.80 of Renewable Resource Grant and Loan (RRGL) funds would be used to provide technical and coordination support for the BFC Action Plan and Long-Term Water Conservation Strategy that is implemented in partnership with the Big Blackfoot Chapter of Trout Unlimited, Montana Department of Fish, Wildlife & Parks (DFWP), U.S. Fish and Wildlife Service (USFWS), National Center for Appropriate Technology (NCAT), Natural Resources Conservation Service (NRCS), Blackfoot landowners, and many others.

Technical Assessment

Project Background

The Blackfoot River watershed encompasses about 1.5 million acres, extending from the headwaters of the Blackfoot River atop the Continental Divide to its confluence with the Clark Fork River just east of Missoula. In its 132-mile journey, the river runs through some of the most productive fish and wildlife habitat in the Northern Rocky Mountains. It is home to numerous fish and wildlife species, including the bald eagle, peregrine falcon, grizzly bear, the threatened bull trout, and nine candidate species for possible listing under the Endangered Species Act. Despite its national reputation and pristine beauty, the Blackfoot Valley was for many years subjected to poor mining, logging, and livestock grazing practices, culminating in degraded water quality and reduced angling opportunities. Today, fragmentation of the landscape into summer home sites and commercial developments poses a long-term threat to the area's renewable natural resources.

The BFC, a nonprofit organization established in 1991 to promote cooperative resource management of the Blackfoot River watershed, has made great strides in stream restoration, habitat improvement, water conservation, weed control, and fisheries enhancement since its inception. The purpose of this project is to support ongoing efforts related to emergency drought response, energy conservation, soil moisture monitoring, and long-term water conservation. Project funds will be used to continue working with watershed partners.

Technical Approach

This project is a collaborative effort between the NPCD and the TBC.

Goals of the project include:
- Supporting ongoing efforts related to emergency drought response; and
- Continuing development of a long-term water conservation program.

The project includes evaluation of pivot irrigation system operations, energy audits, utilization and maintenance of electronic soil moisture measuring probes, flow monitoring, and working with landowners. Three alternatives in addition to the preferred alternative were considered and evaluated: no action, legislative action, and reduced scope of work. Costs were not estimated for the latter two alternatives. The preferred alternative was selected as the quickest way of getting conservation actions under way and the one providing the greatest net benefit to renewable resources in the Blackfoot Valley.

The implementation schedule is tied to ongoing work in the Blackfoot watershed. Components include meetings, project updates, cooperation with stakeholders, oversight and updating of the Action Plan, and coordination with ongoing water quality improvement and native fisheries recovery efforts. While a flexible schedule is necessary for this two-year project, the budget breakdown outlines funding for each task on a month-by-month basis and provides an anticipated schedule for implementation.

Specific tasks to be accomplished:

- Update water users (irrigators, outfitters, businesses, agencies, homeowners, and recreationists) on drought conditions through letters, flyers, newsletters, conference calls, press releases, and the Blackfoot Challenge website;
- Conduct energy audits on 25 pivot systems (audits include measuring system pressure, flow rate, and electrical power input; reviewing past energy use; calculating friction losses, water horsepower, brake horsepower, and pumping plant efficiency; and making energy-saving recommendations);
- Assist irrigators in improving the use of existing soil moisture monitors and in maintaining the monitors;
- Conduct Geographic Information System (GIS) mapping to delineate the types and coverage of specific irrigations systems (e.g., flood, wheel-line/hand line, and pivot) in the basin; and
- Update the Action Plan to ensure coordinated conservation and restoration efforts throughout the Blackfoot watershed.

Project Management

The project appears to have a qualified and experienced management team. NPCD, which has successfully managed dozens of federal and state grants over the past decade, will provide financial management and contract administration support. The BFC coordinator, executive director, and administrator will work on project components and assist in selecting contractors or consultants.

Opportunities for public involvement include BFC and NPCD meetings, open to the public and conducted monthly. In addition, at least 500 people are involved in Blackfoot Challenge committees, education outreach, and tours. BFC website and newspaper articles are estimated to reach 3,000 households in the Blackfoot watershed.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$4,685	$0	$0	**$4,685**
Professional & Technical	$79,662	$0	$70,837	**$150,499**
Construction	$0	$0	$0	**$0**
Total	**$84,347**	**$0**	**$70,837**	**$155,184**

The proposed budget is well prepared and appears feasible for this project. The BFC drought and water conservation coordinator will receive $25,482 over the two-year life of the grant for work directly tied to the project. Significant portions of the work, including energy audits on sprinkler systems and soil moisture probe installation and maintenance, will be contracted through an open solicitation process. NCAT, a nonprofit organization that has previously contracted with BFC for soil monitoring services and energy audits, will be a candidate for this work. Parts of the project that require limited solicitation for technical services include GIS map development and pivot system maintenance evaluations.

The matching grants from DEQ 319 grants ($23,378) and NRCS ($6,400) are in place. BFC is providing $10,000, landowners are providing $10,137 in matching funds, and the remainder of the match is in-kind.

Benefit Assessment

Resource preservation through water and energy conservation is the overall goal of this project. By helping agricultural producers conserve water and energy, the project will ensure continued production of a renewable food supply as well as protect important resources like open space, water, and wildlife.

The project will increase the efficiency of irrigation systems in the Blackfoot watershed through pivot irrigation system evaluations, energy audits, and installation of soil moisture probes. The probes conserve water by making sure that crops are not over irrigated and that irrigation is done at the proper time.

The Blackfoot River system is a high-use fishing and recreation area popular with many Montanans and out-of-state visitors. The project has the potential to increase fish habitat and enhance water-based recreation in the Blackfoot River by reducing the amount of water used for irrigation.

Environmental Evaluation

Environmental impacts associated with the project were evaluated and no apparent adverse long-term impacts will result.

Funding Recommendation

The DNRC recommends grant funding of $84,347 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 5

Applicant Name	Bainville, Town of		
Project Name	Bainville Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	50,000	Applicant / Planning Grants
	$	450,000	CDBG Grant
	$	715,000	TSEP Grant
	$	153,608	WPC SRF Loan
Total Project Cost	$	1,468,608	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Town of Bainville's collection system was constructed in the 1950s consisting predominantly of eight-inch clay tile. About 15% to 20% of the pipe was replaced in 1999, along with the lift station. The lagoons were constructed circa 1975, but no lining was placed.

DEQ visited the Bainville lagoons twice in 2004. The first visit noted concerns about leakage, while the second noted that the lagoon dikes were so severely eroded as to be vertical and in some cases concave. Failure of the dikes and outflow of 30 years of sludge appears imminent. The clay tile collection system pipe leaks excessively and the current wastewater contribution per capita is 162 gallons per day. Inspections demonstrated a high groundwater table and high infiltration. Standing water level in a disconnected manhole was three feet from the surface in northeastern parts of town.

The Preliminary Engineering Report (PER) proposed the following actions and funding is being sought to:

- Clear and videotape all sewer lines;
- Replace the sewer lines shown to have the worst potential for leakage, estimated at 2,400 feet;
- Construct a three-cell facultative system and provide a liner for all cells;
- Dispose sludge; and
- Provide for final wastewater disposal through irrigation.

The most significant benefits of the proposed project are preservation of the groundwater, surface water, public health, and public safety. With dike failure imminent, the proposed project is absolutely essential to preservation of Shotgun Creek and the Lower Missouri. With 85% leakage, large volumes of untreated wastewater are entering the

groundwater adjacent to Shotgun Creek, a tributary to the Lower Missouri, for which a Total Maximum Daily Load (TMDL) is being developed.

The project also provides conservation, management, and development of renewable resources. Through elimination of excessive leakage and use of spray irrigation, the town will be conserving water while protecting other water sources. Spray irrigation will also be used to develop more than 12 acres of agricultural land. Until the project is complete, the town can do nothing to better manage the facilities. The project will allow the town to comply with all federal and state standards.

Technical Assessment

Project Background

Bainville is in Roosevelt County in northeastern Montana, 13 miles east of Culbertson; it is the last Montana town before the North Dakota border on Highway 2. The original wastewater system was constructed in the 1950s, and the lagoon system was added around 1980. Improvements to the collection system and construction of a new lift station were completed in 1998. The system serves a population of 156. The new system will be designed for a population of 196. Numerous deficiencies have been identified in the wastewater system. The lagoons leak excessively, since they were not constructed with a liner system. About 85% of the wastewater entering the lagoon system is lost through leakage with the remaining 15% evaporating.

Infiltration and inflow into the collection system appears to be significant as flows at the lift station are approximately 1.5 times normal wastewater generation. High groundwater and clay tile sewer pipe over 50 years old are the likely causes of the excessive flows.

Technical Approach

The project goal is to provide the community with a new wastewater treatment system that will provide service for 20 years. Repairs will be made to improve the integrity of the wastewater system. Due to low flows in Shotgun Creek, potential TMDL regulations, and nondegradation requirements, only nondischarging options were considered. Five wastewater treatment alternatives capable of meeting treatment alternatives were evaluated. The preferred alternative is construction of a three-cell facultative lagoon system with disposal of the wastewater effluent through spray irrigation. At least one landowner in the area has expressed an interest in obtaining the wastewater effluent for irrigation purposes.

The entire collection system will be cleaned and video-inspected to identify areas most in need of replacement. It is estimated that approximately 2,400 lineal feet of clay tile pipe in the collection system will be replaced with new PVC pipe.

Sludge will be removed from the existing lagoon and land-applied on a nearby agricultural field.

The project is proposed to begin design during summer 2007 and be completed by the end of 2008.

Specific tasks to be completed:

- Construct a new three-cell facultative lagoon system and spray irrigation system;
- Clean and video-inspect the entire collection system;
- Replace approximately 2,400 lineal feet of leaking collection system pipe; and
- Remove and land-apply sludge.

Project Management

The proposed project involves several funding agencies. The town will hire a project manager who will be responsible for keeping each funding agency informed of project progress. The project management plan outlines the duties for the project manager, engineer, mayor, clerk-treasurer, and the town council. This provides a staff of specialists to perform duties important to the project within their areas of expertise. The town will continue utilizing monthly council

meetings for public involvement throughout the project. In addition, the town will keep the public informed through monthly utility bills.

The project management plan provides for thorough and well-organized contract management with regulatory and funding agencies, consultants, contractors, and other involved parties. Roles of the project manager are clearly defined in the grant application and are appropriate given the budget allocations and project approach. The project budget allows for funding to support the financial and administrative aspects of the project. The proposed project schedule anticipates completion within two years. The project will be ready for start-up of design once the town is confident grant funds will be awarded.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$53,464	**$53,464**
Professional & Technical	$0	$0	$258,242	**$258,242**
Construction	$100,000	$0	$1,056,902	**$1,156,902**
Total	**$100,000**	**$0**	**$1,368,608**	**$1,468,608**

The project budget is complete and includes adequate detail to show that the proposed budget is sufficient to complete the proposed project. The applicant has applied for a TSEP grant for $715,000 and a CDBG grant for $450,000. The applicant has already spent $50,000 on preliminary engineering and planning and will obtain WPC SRF loan funding for $153,608 for the remainder of the project budget. The applicant is eligible for TSEP, CDBG, and SRF funding.

The applicant is a local government and can collect charges for debt and operation. Current residential charges for wastewater service are $21.67 per month. The projected residential rate is $36.67 per month and will affect 73 households. The existing water rate is $25.06 and is expected to rise to $45.20 by the end of the year as the town is connected to the Dry Prairie water system. This will result in a combined residential utility bill (water and sewer) of $81.87 which exceeds the target rate by $35.58 per month (177% of the target rate).

Cost estimates were provided for the alternatives considered for each of the project components and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has resource management, development, and preservation benefits.

Construction of new lagoons will eliminate leakage of untreated wastewater into the groundwater aquifer. Disposal of the treated wastewater through spray irrigation will provide better management and result in measurable benefits of a renewable resource through better stewardship. In addition, irrigation of crop land with the treated wastewater will provide a new use of a renewable resource. Preservation benefits include elimination of leakage of partially treated wastewater which will protect and preserve the groundwater aquifer and nearby Shotgun Creek and will also enhance water quality.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 6

Applicant Name	Petrolia Irrigation District (PID)		
Project Name	Petrolia Irrigation Rehabilitation Project		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	3,000	Applicant, Cash
	$	2,000	Applicant, In-Kind
	$	3,000	Local Landowner, Cash
	$	3,000	Local Landowner, In-Kind
Total Project Cost	$	111,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The PID is in Petroleum County, about seven miles southeast of Winnett. The PID is requesting funds through the Renewable Resource Grant and Loan Program (RRGL) for design and construction of canal lining in the main irrigation canal. The goal of the project is to provide the PID with an irrigation infrastructure improvement that will conserve water resources and increase crop yields and benefit recreational uses on Petrolia Reservoir.

In compliance with RRGL requirements, an engineering firm conducted a field review and survey in October 2005 and January 2006. Canal structure, erosion, siltation, and seepage were also inventoried. The primary recommendation of the study is to line a portion of the canal with a geomembrane canal liner which will provide stabilization and control leakage of irrigation water. An estimated 600 acres of land has been put out of production or has decreased production rates due to the saline seep and leakage of irrigation water from this portion of the canal. Because of lost production, the annual crop loss has been estimated at approximately $136,500.

Implementation of the proposed project will potentially result in a significant economic benefit to the community. Also, higher rates of water storage from year to year in Petrolia Reservoir will benefit the recreational industry in this area. The reservoir is used heavily by fishing, boating, and camping enthusiasts from across the state. Improved canal efficiency and decreased canal seepage will increase irrigation delivery and allow the PID to provide more water to users during the most critical time of the irrigation season.

Technical Assessment

Project Background

A two-mile portion of the Low Line Canal has been identified by the PID and the Montana Salinity Control Association (MSCA) as having significant seepage problems threatening the stability of the canal and causing loss of production on about 300 acres of land and reduced production on another 300 acres of land due to saline seeps. PID proposes to install 2,525 feet of canal liner to save an estimated 4,500 acre-feet of water per year and increase productive land by 600 acres. Alternatives considered were no action and three types of canal liners. The proposed project is the recommendation of an Engineering Study Report (ESR) prepared in 2006.

Technical Approach

The goals of the project are to reduce saline seepage, increase available water supply, improve irrigation efficiency, improve canal bank stability, increase recreational benefits, and increase productive lands within PID. The preferred alternative is to install canal liner to 2,525 feet of Low Line Canal identified as having the greatest seepage problems. The canal liner alternative was selected to minimize both initial and future O&M costs, maximize performance, and avoid current environmental concerns associated with canal seal. Potential environmental impacts of all three types of canal liners are the same. The greatest potential environmental impact of lining a canal is reducing water for wetlands that have been created by historical seepage. The applicant indicated no wetlands along the canal would be eliminated by the proposed canal lining project. Project implementation would begin in July 2007 with the detailed engineering report. Construction is anticipated to begin in October 2007 and be completed in December 2007.

Specific tasks to be accomplished:

- Detailed engineering report with construction sequence;
- Canal shaping;
- Gravel ballast processing; and
- Canal liner installation.

Project Management

The PID board and secretary-treasurer will administer the grant and an engineering firm will develop the contract documents and perform contract administration. An ESR was completed in 2006 and the project is ready for implementation when funding is available and the current irrigation season is over. One public meeting has been conducted and others are planned if this grant is received.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$2,000	**$2,000**
Professional & Technical	$20,000	$0	$0	**$20,000**
Construction	$80,000	$0	$9,000	**$89,000**
Total	**$100,000**	**$0**	**$11,000**	**$111,000**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Costs of the various alternatives are also provided. Justification for the proposed action as the least-cost alternative in the long run is provided and is reasonable.

PID currently assesses fees of $15/acre on 17 farms. The proposed project will not impact these fees. PID appears to be able to provide the matching labor, materials, and cash listed in the budget. There is no back-up plan for this budget; if this grant is not approved, PID will not carry out the project.

Benefit Assessment

The primary benefits to renewable resources are conservation of water currently lost to canal seepage and development of productive land currently impacted by saline seep. The applicant estimated that 4,500 acre-feet of water are lost to seepage annually. A total of 600 acres of land is impacted by saline seep from the stretch of canal that is proposed to be lined. Although this project would result in measurable water savings, no measuring devices are in place to determine the exact amounts conserved. One secondary benefit is improved resource management. Canal lining would provide a permanent solution to an ongoing O&M problem. In addition, lining will allow PID to better manage and deliver irrigation water through the system. The conserved water would allow for additional carry-over storage in Petrolia Reservoir which, in turn, increases fish and wildlife benefits.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 7

Applicant Name	Montana Department of Natural Resources and Conservation (DNRC) Water Resources Division (WRD)		
Project Name	Ackley Lake Dam Rehabilitation		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	809,022	DNRC Hydropower Account
	$	87,257	DNRC, In-Kind
	$	323,464	DNRC Water Storage Account
	$	200,000	RRGL Loan
Total Project Cost	$	1,519,743	
Amount Recommended	$	100,000	Grant
	$	200,000	Loan

Project Abstract (Prepared and submitted by applicant)

The Ackley Lake Dam is approximately 10 miles southwest of Hobson. The dam is owned by the DNRC, with daily operations and maintenance the responsibility of the Ackley Lake Water Users Association. The dam and canal system were constructed by the State Water Conservation Board in 1938. Water from the reservoir is used for irrigation, recreation, and regulation of streamflows. The reservoir storage capacity at the dam crest elevation is 8,315 acre-feet. Surface area at normal full pool is 260 acres. The drainage area covers 2.6 square miles. Ackley Lake State Park surrounds most of the reservoir and is a popular recreation area, with fishing the most common activity.

The earthen embankment dam is 51 feet high and 3,514 feet long. The reservoir stores 5,975 acre-feet at the spillway crest. The dam is classified “high hazard” under the Montana Dam Safety Act guidelines because of the potential for loss of life below the dam should failure occur.

A feasibility study for Ackley Lake Dam was prepared in 2006 to present designs, design options, and costs for rehabilitating the existing seepage control measures and outlet conduit of the dam. In the toe area of the dam, artesian pressures have been measured that are well below applicable safety standards. Both the original drains and outlet conduit were constructed with corrugated metal pipe with corrosion protection (galvanized and tar coating). However, given the age of the project, these pipes are probably nearing the end of their design life.

Project rehabilitation will consist of installation of new drains and a toe berm to control the seepage and construction of a new outlet conduit to replace the existing, deteriorating structure. Repair work and improvements will enhance dam safety and longevity and promote effective water conservation for irrigation needs, recreation, and fisheries enhancement.

The funding in this request would be used to help pay for rehabilitation construction costs. The DNRC WRD is requesting a grant of $100,000 and a loan of $200,000 from the Renewable Resource Grant and Loan Program (RRGL) to contribute to the overall project. Additional funding sources include a $1,132,486 Executive Planning Process (EPP) budget request from the Water Storage and Hydropower accounts and approximately $87,257 from the DNRC in-kind contributions. Estimated total cost of the project at the feasibility stage is approximately $1,519,743.

Technical Assessment

Project Background

The purpose of this project is to correct a safety deficiency associated with high pore pressures in the foundation of this high hazard dam and to rehabilitate the outlet works. The dam is under storage restrictions from the Montana Dam Safety Program due to artesian pressures in the foundation at the downstream toe of the dam. The outlet conduit is corrugated metal pipe in need of rehabilitation to maintain reliable, long-term service.

The DNRC WRD completed detailed investigations of the foundation pressures in 2005 and completed a feasibility study in 2006. Relief wells were installed in conjunction with the detailed investigations. The feasibility study utilized the investigations and measured performance of the relief wells to evaluate alternative repairs and develop the selected plan.

The project is a critical irrigation water supply for the Ackley Lake Water Users Association consisting of 27 water users that irrigate approximately 6,000 acres. Ackley Lake is a popular fishing and camping site with approximately 6,200 angler-days in 2003 and 19,320 visitor-days in 2004. Montana Department of Fish, Wildlife & Parks (DFWP) maintains Ackley Lake State Park in the area surrounding the project site.

Technical Approach

The selected plan will consist of construction of new drains at the toe of the dam to relieve the foundation pressures and a toe berm to provide stabilizing weight. The plan also includes removal and replacement of the existing outlet pipe with a new concrete conduit. The SWPB will manage the project utilizing a professional consulting firm to provide final design and construction administration services. Project construction will be competitively bid in conformance with Montana statutes and regulations.

The proposed alternative was selected based on long-term reliability and costs. Other alternatives considered in the feasibility study included an upstream seepage cutoff and in-place lining of the outlet conduit. It was determined that the upstream cutoff would have questionable effectiveness. Lining the existing conduits was not selected due to concerns about effectiveness and long-term performance.

Specific tasks to be accomplished:

- Design consultant selection, September 2007;
- Preparation of final design and construction documents, winter, 2007-08;
- Construction bidding and award, March-June 2008;
- Project construction, August-December 2008; and
- Project reclamation, completion, and monitoring, spring 2009.

Project Management

The project will be completed with a traditional design-bid-build sequence. The DNRC WRD will manage the rehabilitation project. The WRD manages numerous state water storage projects and has successfully utilized a similar project management approach on many of those projects. A design consultant will be selected in conformance with state laws and regulations to provide final design, construction documents, and construction administration. A single prime construction contractor will be selected through a competitive bidding process. The project budget allows for funding to support the administrative, professional, and technical aspects of the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$87,257	**$87,257**
Professional & Technical	$0	$0	$323,464	**$323,464**
Construction	$100,000	$200,000	$809,022	**$1,109,022**
Total	**$100,000**	**$200,000**	**$1,219,743**	**$1,519,743**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Justification for the proposed action as the least-cost alternative in the long run is provided and is reasonable.

The RRGL loan amount is based on a payment capacity analysis of the water users' ability to pay for irrigation water on a typical farm enterprise. Direct annual economic benefits associated with Ackley Lake were estimated at $760,335 for recreation use and $227,207 for agricultural use.

Benefit Assessment

The primary benefits to renewable resources are preservation and restoration of storage that is currently restricted to maintain the safety of the dam. The proposed project would result in measurable benefits of increased water storage to the historic level.

In addition, secondary benefits from the proposed project include resource conservation and management. The proposed project provides measurable long-term future renewable resource benefits for multiple uses and the sponsor has demonstrated public support of the project.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The beneficial results are primarily related to maintaining the integrity of the project. Short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 and loan funding of $200,000 at 4.75% for up to 20 years, upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 8

Applicant Name	Cut Bank, City of		
Project Name	Cut Bank Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	229,000	DW SRF Loan
	$	450,000	STAG
	$	550,000	TSEP
Total Project Cost	$	1,329,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The water system serving Cut Bank dates to approximately 1914 and consists of a water treatment plant, two 1 million-gallon storage tanks, and approximately 123,000 lineal feet of water main. Over 70% of the water mains are 65 years and older and most are undersized. The plant needs to add a backwash pump, flocculator, and sedimentation basin.

The source of water is Cut Bank Creek and it creates the following deficiencies in the water system:

- Rapid changes in turbidity making treatment difficult;
- Very low streamflows that do not yield sufficient water to satisfy community needs. The city is forced to place severe restrictions on water use and running out of water is possible;
- Existing off-stream storage of raw water may not have sufficient capacity to meet demands during low flow events of long duration; and
- Given the catastrophic nature of running out of water, the city believes it must immediately augment its existing raw water storage or find an alternate or back-up supply.

The distribution system experiences the following deficiencies:

- Old, undersized, and severely corroded pipe;
- Inadequate fire flow capacity which represents a public safety concern;
- Leakage in the distribution system of an estimated 96 million gallons;
- High frequency of repair;
- Heavily corroded pipelines encourage the growth of biofilms which harbor bacteria and reduce chlorine residuals presenting a public health risk;
- Heavily corroded lines inhibit adequate pipeline flushing; and
- Low pressures result in backflow and associated contamination.

The proposed solution is to complete improvements in phases. Distribution and treatment improvements will be completed in subsequent phases.

For this grant application the following work will be completed:

- Expand existing off-stream raw water storage by adding a new pond adjacent to existing pond; and
- Add backwash pump.

Technical Assessment

Project Background

Cut Bank operates and maintains a public water system in the community utilizing surface water from Cut Bank Creek as the source of water. The system serves 3,105 persons which is projected to grow to 3,347 persons in the next 20 years. The highest priority problem with the water system relates to the limited water availability from the creek, particularly during high summer demand periods. The city has been involved in an ongoing

analysis and upgrading of its water system and the proposed project is a continuation of that process, identified as "Phase 3." The applicant provided a detailed analysis of feasible alternatives for supplementing the water supply and concluded that additional off-stream storage of raw water is the most cost-effective solution. This stored water will feed the existing water treatment plant which treats the water to an acceptable quality.

Technical Approach

Due to the extent of the problems with the water system, a phased approach was developed in the engineering analysis to create prioritized and affordable project components. Recent work on the water system included improvements to the water plant, a new water intake, and construction of off-stream storage. From analysis of the water flows in Cut Bank Creek, it becomes apparent that additional water is needed to meet peak demands of the community. The proposed project includes expansion of the existing raw water storage lagoon with an additional cell and new backwash pump to improve reliability in the water treatment plant. Future projects include installation of new water mains to replace antiquated, undersized mains, known also to cause significant leakage. Work on the water plant is also planned for the future.

Analysis of alternatives to expand the water supply was provided with a thorough consideration of each option. Groundwater supplies were evaluated and found to be quite expensive and of marginal water quality. The engineering analysis also looked at connection to the North Central Montana Regional Water System which was also more expensive than the proposed project. Obtaining water rights limits the city's ability to utilize other surface water supplies in the general area. The proposed alternative does not entirely resolve the problem of water supply during maximum demand. The project, in conjunction with appropriate management practices, should resolve the water supply problems in all but the most extreme situations.

Specific tasks to be accomplished:

- Phase 3
  - Expand existing off-stream raw water storage by adding a new pond adjacent to existing pond. The expansion would double the storage pond volume; and
  - Add a backwash pump to improve reliability of the water treatment plant.

Phases 1 and 2 have been completed; Phase 3 activities are applied for in this funding cycle. Phase 4 will be applied for in the next cycle. Phase 5 activities, along with a few other needed improvements, are included in the future Capital Improvements Plan.

Project Management

The project management plan indicates that local and professional staff will be used to administer and manage the proposed project from design through completion and close-out. Public involvement was discussed and plans for keeping the public involved in future stages of the project development process were included. The public was involved throughout the project planning process and should be well aware of the proposed improvements.

The project planning has been completed and the project appears to be ready for design in 2007-2008 and ultimate completion within two-years time frame.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$73,500	**$73,500**
Professional & Technical	$12,000	$0	$200,800	**$212,800**
Construction	$88,000	$0	$954,700	**$1,042,700**
Total	**$100,000**	**$0**	**$1,229,000**	**$1,329,000**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a fairly detailed breakdown of unit construction costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate.

The town's funding strategy appears reasonable with TSEP and STAG grant funds proposed in addition to the DNRC grant request. However, STAG funds, reliant on a congressional appropriation, are not assured at this time. The Montana DW SRF or the RD program will be utilized to provide loan funds for the project.

Benefit Assessment

The proposed off-stream storage will help maintain streamflows by supplementing withdrawals that would be required if the storage were not available. These preserved in-streamflows will help maintain water quality and provide for other beneficial uses. However, given the peak demand by the city for potable water, the capacity of the off-stream storage will not entirely eliminate the need for use of streamflows, particularly during low flow periods. Clearly, the proposed project will allow the city to better manage water resources to provide potable water. The project will significantly reduce the risk of the city running out of water during maximum demand periods. The redundant backwash pump will improve the ability of the city to operate and maintain the water treatment plant. The water storage project will allow preservation of water resources for water supply needs and will also provide in-stream water quality benefits through maintenance of streamflows.

Environmental Evaluation

The applicant performed an environmental assessment of the beneficial and adverse impacts that might occur as a result of the project. The environmental checklist was filled out and agencies with applicable environmental authority contacted. The proposed project will not result in adverse environmental impacts, except for reasonably expected temporary construction impacts. Of the alternatives considered for new water supplies, the proposed project appears to have the least adverse environmental impact. Minimal short-term, construction-related impacts will be controlled through proper construction observation and control.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 9

Applicant Name	Whitehall, Town of		
Project Name	Whitehall Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	180,000	Applicant
	$	450,000	CDBG Grant
	$	820,500	STAG Grant
	$	750,000	TSEP Grant
	$	1,161,600	WPC SRF Loan
Total Project Cost	$	3,462,100	
Amount Recommended	$	100,000	Grant
Project Abstract	(Prepared and submitted by applicant)		

Whitehall is served by a central collection and treatment system. The treatment facility consists of two facultative lagoons and ultraviolet (UV) disinfection. Discharge is to Big Pipestone Creek.

The existing lagoon leaks excessively and the facility is undersized for existing flows, resulting in inadequate treatment. The discharge from the facility results in ammonia toxicity in the receiving waters. Big Pipestone Creek is impaired due to these nutrients. The lagoon discharge and leakage impact Big Pipestone Creek as increased algae growth has been documented below the lagoons. The Montana Department of Environmental Quality (DEQ) has indicated that since nutrients are a cause of impairment to Big Pipestone Creek, nutrient limits will likely be imposed in future permits. The existing facility will be unable to meet the anticipated in-stream target concentrations for nitrogen and phosphorous. The sewer collection system experiences some inflow and infiltration. The identified sources of these increased flows include four storm sewer inlets connected to the sewer system and old clay tile pipe sewer mains.

Proposed improvements include construction of a single 7.7-acre facultative primary treatment cell and an 11.5-acre storage cell. The lagoons will be lined with a synthetic liner to protect groundwater and nearby surface water. Wastewater will be land-applied, at agronomic rates, to crop land. The beneficial re-use of domestic wastewater for irrigation represents conservation of a natural resource. Eliminating the discharge to Big Pipestone Creek will significantly reduce public and environmental health hazards as well as improve, protect, and preserve a renewable resource. The project will rehabilitate several collection mains to eliminate infiltration and will remove four storm sewer inlets connected to the sewer system.

The project will solve all serious health and safety problems and enhance the common well-being of Montanans through the conservation, management, development, and preservation of the town's wastewater system.

Technical Assessment

Project Background

Whitehall operates and maintains a centralized wastewater collection/treatment system, serving approximately 1,111 people. The original wastewater system was constructed in roughly 1915 and the town has been proactive in making improvements to the system to address problems, growth issues, and implement standard technologies. Of the roughly 43,000 lineal feet of gravity collection system piping in the system, approximately 15,000 feet of the original clay pipe is suspected of being in poor condition and a possible source of infiltration. The town has four storm sewer catch basins connected directly to the sanitary sewer which contribute significant inflow during precipitation and runoff events. The treatment system, upgraded in 1987, consists of two facultative lagoons with UV disinfection and continuous discharge to Big Pipestone Creek. Approximately 23% of the total flow to the treatment plant leaks through the lagoon's clay liner. Discharge from the facility is regulated by a Montana Pollutant Discharge Elimination System (MPDES) permit with typical equivalent to secondary treatment standards. No violations have been documented, although it is suspected that numerous violations have been avoided due to leakage allowing a fill/draw method of operation. The town's MPDES permit is scheduled for renewal in late 2006 and it is anticipated that significantly more restrictive ammonia limitations and Total Maximum Daily Load (TMDL)-based limitations for nitrogen and phosphorous will be imposed. The applicant speculates that the future MPDES limitations will be unachievable with available treatment technology and has therefore elected to implement a nondischarging, spray-irrigation disposal methodology.

Technical Approach

The project goal is to eliminate the four storm drain connections to the sanitary sewer and rehabilitate approximately 15,000 lineal feet of 10-inch and 12-inch clay sewer main with a cured-in-place pipe liner. Proposed improvements to the treatment system include construction of a two-cell, membrane-lined facultative treatment lagoon, followed by a 28 million gallon storage lagoon, lift station, and irrigation of approximately 45 acres of agricultural land. All construction would take place outside the footprint of the existing treatment facility. Accumulated sludges from the existing facility would be land applied in accordance with the applicable federal regulations.

The alternative evaluation consists primarily of various treatment/discharge options for the treatment system. The preferred alternative was selected based on cost effectiveness and socioeconomic impact evaluation, as well as the ability to comply with anticipated MPDES permit limitations in the upcoming renewal. The no action alternative was considered and rejected. Environmental impacts will generally be short-term, construction-related. The applicant anticipates that funding will be finalized by May 2007; treatment project design will occur in winter 2007-08, bid in spring 2008, and be constructed during the 2008 construction season.

Specific tasks to be accomplished:

- Replace the existing two-cell facultative lagoon and continuous discharge with a two-cell, membrane-lined, facultative lagoon system followed by a 28 million gallon storage cell and spray-irrigation system;
- Eliminate four storm drain connections to the sanitary sewer system and reconnect to the town's existing storm sewer system; and
- Rehabilitate approximately 15,000 lineal feet of clay pipe with a cured-in-place pipe liner.

Project Management

The proposed project management plan identifies adequate and capable staff to successfully administer and manage the proposed project from planning through completion and close-out. The plan addresses ongoing public involvement. The project management plan provides for professional management of agreements and contracts associated with the proposed project and has sufficient budget to fund project management.

The project planning has been completed and the project appears to be ready for design in 2007 and ultimate completion within two years. The applicant's public involvement program has been successful in the planning phase, and the town will continue to seek input from users throughout the process.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$175,100	**$175,100**
Professional & Technical	$0	$0	$517,750	**$517,750**
Construction	$100,000	$0	$2,669,250	**$2,769,250**
Total	**$100,000**	**$0**	**$3,362,100**	**$3,462,100**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a fairly detailed breakdown of unit construction costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Grant/loan administration budget of $45,000 is relatively high, considering one construction season and five funding sources.

The town's funding strategy appears reasonable with the TSEP, CDBG, STAG, WPC SRF loan funds, and a $180K local contribution in addition to the DNRC grant request. The other funding programs were contacted and applications made in accordance with the town's schedule. The SRF program was contacted and Whitehall's project is included on the priority list and should be a good candidate for the anticipated loan. Debt service was properly calculated for a 20-year loan. The applicant is not on the current fundable list for its anticipated $820,500 STAG grant.

Benefit Assessment

The primary benefits to renewable resources will be conservation through reduction of leakage from the town's treatment facility, elimination of a pollutant point-source to surface water, increased management capability for the town's wastewater, and preservation of the quality of Big Pipestone Creek. Some reduction in the use of agricultural fertilizers may be realized with the land application of sewage sludge and spray-irrigation with treated wastewater effluent.

In addition, secondary benefits from the proposed project include fisheries habitat and recreational benefits through improvements to Big Pipestone Creek. All of these benefits are long-term.

Environmental Evaluation

Most of the possible environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through proper construction observation and control. Secondary reviewer indicated further evaluation of the suitability of the land-application site soils is necessary–all treatment improvements will occur outside the designated floodplain. Additional land will be necessary for construction of the treatment/storage facilities and a long-term lease will be necessary for the spray-irrigation site. The most beneficial environmental alternatives for treatment/disposal and collection system rehabilitation were recommended for implementation.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 10

Applicant Name	Montana Department of Natural Resources and Conservation (DNRC) Water Resources Division (WRD)		
Project Name	East Fork Siphon Replacement and Main Canal Lining Project		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	113,722	Applicant, In-Kind Match
	$	320,000	DNRC Hydroelectric Earnings Account
	$	300,000	DNRC Water Storage Account
	$	481,000	Natural Resources Conservation Service (NRCS) Grant
	$	400,000	RRGL Loan
Total Project Cost	$	1,714,722	
Amount Recommended	$	100,000	Grant
	$	400,000	RRGL Loan

Project Abstract (Prepared and submitted by applicant)

The Flint Creek Water Project (FCWP) is owned by the DNRC and operated by the Flint Creek Water Users Association. The project originally comprised a 16,040 acre-foot off-stream reservoir and five delivery canals, totaling 46.6 miles in length. The storage water carried by the supply canal is provided by the East Fork Reservoir. The Main Canal, which feeds the four other delivery canals, is 7.7 miles long. Construction of the original project was completed in 1939. The transfer of ownership of all of the delivery canals, except the Main Canal, from the state to the Flint Creek Water Users Association is pending.

Water from the FCWP irrigates nearly 38% of the land under irrigation in the Philipsburg Valley. Consequently, the economy of the region is linked to serviceability of this project.

Water from the project provides lifeblood for agriculture, fish and wildlife, and recreation; it irrigates ranch and farm land, recharges the flow of Flint Creek, supports local wildlife habitat, provides trout fisheries, and offers a recreational resource to hunters and fishers. It gives refuge to the bull trout, a federally listed endangered species, and to the westslope cutthroat trout, a Montana species of special concern.

Due to deterioration from age, slope instability, and insufficient repairs, the East Fork Siphon on the Main Canal now requires substantial rehabilitation. The siphon ruptured in June 2001 and was shut down for repairs. Each subsequent year, additional repairs have been undertaken, including patching of corrosion holes and replacing straps on a concrete anchor block. Shutdown during critical irrigation times can have a deleterious effect on crops.

Measurements in July 2004 verified that the Main Canal lost nearly 13% of its flow between the headgate and the siphon and nearly 20% end to end. A considerable quantity of water is lost through the highly pervious canal prism. The Flint Creek Water Users wish to stem loss of water from the Main Canal, stop the damage, and return this precious resource to beneficial use.

In order to address these concerns, the DNRC WRD proposes to rehabilitate the canal by (1) installing canal lining on the most pervious reaches of the canal and (2) fortifying the canal against slope failure by applying shotcrete on the left inner side slope. These measures will rehabilitate the FCWP's infrastructure and conserve water.

For these reasons, the DNRC WRD is requesting a grant of $100,000 and a loan of $400,000 to replace the East Fork Siphon and line the Main Canal, and thereby prevent seepage, protect private property, and conserve water for more beneficial use to landowners and to the general public.

Technical Assessment

Project Background

The Main Canal and East Fork Siphon are key components of the Flint Creek Water Project, an irrigation project constructed in the 1930s and owned by the state of Montana. Consisting of a reservoir with a capacity of 16,040 acre-feet and five delivery canals that total 46.6 miles in length, the system is operated and maintained by the Flint Creek Water Users Association. Water stored and distributed by the system provides water for 44 operations irrigating 9,486 acres in the Upper and Lower Flint Creek valleys in Granite County.

The East Fork Siphon is a 54-inch steel conduit. Approximately 4,000 feet long, it carries water being conveyed in the Main Canal across a small valley and the East Fork of Rock Creek. The pipe has reached the end of its useful life and requires continual maintenance. In June 2001, the siphon failed, and the system had to be shut down for immediate repairs at the height of the irrigation season.

The Main Canal loses nearly 13% of its flow from its beginning to the siphon due to seepage. Not only is this a serious water conservation issue, but seepage immediately upstream from the siphon is responsible for slope instability that could lead to structural failure of the siphon or its replacement.

Major alternatives considered for mitigation of these deficiencies included siphon rehabilitation, siphon replacement, and installation of four different lining options for the Main Canal.

Technical Approach

The East Fork Siphon Replacement and Main Canal Lining Project includes two distinct phases of work. Alternatives considered for mitigation included several rehabilitative options including internal lining, insertion of a fiberglass pipe within the existing steel pipe, and complete replacement. Complete replacement with high-density polyethylene (HDPE) pipe was selected as the preferred alternative. It is the least-cost alternative, requires less maintenance than other materials, and the replacement option presented no long-term adverse environmental impacts.

A study completed by the applicant in 2004 identified two reaches of the Main Canal that are the most susceptible to seepage losses. One of the reaches is at the upstream portal of the siphon; seepage from this reach is the potential cause of slope instability and could lead to complete structural failure of the siphon or its replacement. Lining alternatives considered included an ethylene propylene diene monomer (EPDM) rubber liner, a bentonite clay liner, a polyvinyl chloride (PVC) liner, and an HDPE liner. The EPDM liner was selected based on cost and acceptable performance. Environmental impacts for all of the alternatives are comparable and include only short-term construction impacts.

Specific tasks to be accomplished:

- Procure the services of an engineering firm to design the project and prepare bids;
- Bid the project in accordance with applicable statutory requirements;
- Remove and replace the existing East Fork Siphon with 48-inch HDPE pipe; and
- Line two reaches of the Main Canal, totaling approximately 2,600 feet, with an EPDM rubber liner.

The East Fork Siphon is susceptible to failure, and it is important that the project be constructed as soon as funding will allow. Procurement of engineering services and subsequent design will occur in fall 2007. It is a requirement that the project be constructed while the system is not in use; accordingly, construction is scheduled for fall and early winter 2008-2009.

Project Management

The DNRC WRD will have ultimate authority and responsibility for the expenditure of grant funds as approved by the Legislature, as well as public notification and involvement. Design of the project and the preparation of bid documents will be performed by an engineering consultant under contract with the WRD. Construction oversight duties will be shared between the consulting firm and a WRD staff engineer. Grant management and reporting requirements will be the responsibility of the project coordinator, a staff contracts manager with the WRD.

The Flint Creek Water Users Association, irrigators, and other affected landowners will be notified of all construction activities associated with the project. The project, as presented in the implementation plan, will be constructed between the 2008 and 2009 irrigation seasons and will not affect delivery of water to irrigators.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$37,189	**$37,189**
Professional & Technical	$100,000	$58,245	$35,173	**$193,418**
Construction	$0	$341,755	$1,142,360	**$1,484,115**
Total	**$100,000**	**$400,000**	**$1,214,722**	**$1,714,722**

Based on the cost estimate provided in the application, the budget is sufficient to fund the proposed project. Unit costs used to develop the estimated cost of construction are reasonable, and a 15% construction contingency is included in the cost estimate. Justification for the proposed action as the least-cost approach is provided in the application.

Forty-four irrigators irrigating 9,486 acres in the Upper and Lower Flint Creek valleys purchase an annual total of 27,180 acre-feet of water at $5.25 per acre-foot. The loan associated with this project, based on a 20-year term at 4.5%, will increase the annual user cost by $1.13 per acre-foot. This will result in a user cost of $6.38 per acre-foot of contracted water, or an average of $18.28 per irrigated acre.

Matching funds for this project depend on legislative approval of WRD budget requests and the availability of future federal grant funding through the Natural Resources Conservation Service. If approved and awarded as proposed, the project will be in a position to bid and construct in fall 2008.

Benefit Assessment

Resource preservation is the primary renewable resource benefit associated with this project. An existing resource and the benefits it provides are being preserved through the replacement of an essential component of the system. The project also provides other benefits. Water losses attributable to seepage in the Main Canal approach 20%. Water is a valuable commodity in the Flint Creek Valley, and water stored each spring in Flint Creek Reservoir is essential to maintenance of streamflows in Flint Creek and the availability of irrigation flows to 44 ranch operations in

Granite County. Seepage control will enable the system operator to better predict and control release requirements each season, thus enhancing management of the system.

In addition to the irrigation benefits attributable to the project, other multiple-use benefits also exist. Both Trout Creek and Flint Creek are reliant upon this system to maintain late-summer flows and support fish and wildlife habitat and their associated benefits to recreationists and the local economy. The project is supported by irrigators, citizens, and county government as evidenced by letters of support submitted with the application.

Environmental Evaluation

Short-term, adverse environmental impacts will occur during construction. These will be minimal, since the construction area is not near a populated area. Point-source runoff abatement will be necessary to meet permit requirements for work in the East Fork of Rock Creek. Long-term environmental impacts are beneficial and include the benefits currently provided by the Flint Creek Water Project–maintenance of streamflows and provision of adequate irrigation flows to sustain agriculture and habitat for fish and wildlife in the Upper and Lower Flint Creek valleys.

Funding Recommendation

The DNRC recommends grant funding of $100,000 and loan funding of $400,000 at 4.5% for up to 20 years, upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 11

Applicant Name	Loma County Water and Sewer District		
Project Name	Loma Water System Improvements, Phase 1		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	144,700	DW SRF Loan
	$	1,200,000	STAG Grant
	$	750,000	TSEP Grant
Total Project Cost	$	2,194,700	
Amount Recommended	**$**	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Loma County Water and Sewer District provides water to the unincorporated community of Loma and 71 rural water users in northern Chouteau County. The Loma water system draws its water from the Marias River, and then treats the water through a package water treatment plant. The system has approximately 119 miles of various sizes of distribution lines. The sizes range from six inches to one inch, with 42% of the lines one inch. Fifty-seven percent of the system utilizes glue joints, with the remainder using gasketed joints.

The district's water system PER showed that the water treatment plant is capable of meeting current surface water treatment rules and is providing good-quality water to its users. However, the engineer has identified several deficiencies which will hamper the district's ability to meet future Safe Drinking Water Act (SDWA) regulations. The district is a member of the North Central Montana Regional Water Authority and will need to decide if it will participate in the Rocky Boy's/North Central Montana Regional Water System (RWS). If it elects to join, then the treatment plant improvements are not necessary.

In the past four years, the district had over 307 repairs with 99% directly connected to polyvinyl chloride (PVC) glue joint failure. The estimated leakage range is 100 to 250 gallons per capita per day (gpcd) or 26,000 to 52,000 gallons per day. It is estimated that 20% to 40% of the water is unaccounted for with the current system. The

district is proposing to phase in the improvements, with the first phase addressing 90% of the one- inch glued joint distribution lines and installation of water meters.

Technical Assessment

Project Background

Loma's water system was constructed in 1980 and has served the district fairly well over the years. Recent problems with the system include significant leakage along several miles of rural distribution piping and deficiencies with the water treatment process. The leak repair frequency of the small-diameter rural piping is averaging approximately five per month. Deficiencies at the water treatment plant include lack of a pre-sedimentation basin to reduce turbidity levels in the raw water before the water reaches the clarifier, deteriorating condition of the clarifier and filter, inadequate backwashing velocities to the filter, and numerous deficiencies with the plant valves, piping and controls. The district is strongly considering joining the RWS, and is not including any treatment plant improvements with this Phase 1 project. If the district elects not to join the RWS, upgrades to the treatment plant would be made in a future phase of the project. Water storage deficiencies include an undersized tank which needs recoating.

Distribution system alternatives considered included replacement of all of the one-inch and 1.5-inch diameter and smaller rural distribution piping. Due to cost considerations, the applicant is proposing to replace 240,000 feet of piping with Phase 1, and the remaining 124,000 feet with Phase 2 later. The project also includes installation of water meters for all system users. Water supply/treatment alternatives considered included rehabilitation of the existing direct filtration plant, construction of a new conventional treatment plant, and connection to the RWS. Water storage alternatives considered included recoating the existing 150,000-gallon tank with no new storage, construction of a new 286,000-gallon tank to replace the existing tank, and construction of a new 136,000-gallon tank and recoating of the existing tank.

Technical Approach

The Preliminary Engineering Report (PER) identified nearly $5 million of recommended improvements. The district has selected three sets of improvements to include with this Phase 1 project. Selection of the recommended improvements was based on several criteria including cost effectiveness, O&M complexity, environmental impacts, and regulatory compliance. Goals of the project are to eliminate significant leakage problems with the rural distribution piping, promote water conservation with installation of water meters, and extend the life of the existing storage tank.

Alternatives selected included replacement of 240,000 feet of one-inch rural distribution piping, installation of systemwide radio-read water meters, and recoating of the existing 150,000-gallon steel storage tank. The PER acknowledges that the current 150,000 gallons of storage does not meet DEQ's requirements for storage tank sizing. Per DEQ, the district should have 286,000 gallons of storage. The rural system includes approximately 400,000 gallons of "storage" in the form of individual cisterns at each residence. However, the water in these cisterns would not be available for fire protection or domestic usage in town, and would likely not be counted toward the DEQ required storage volume. The recommended alternative does not include adding additional storage, based largely on a letter from the Loma Fire Department indicating 150,000 gallons is adequate for its fire-fighting needs. This letter, however, was not included in the PER, and to date has not been provided to the review engineer.

Alternatives considered included evaluation of environmental impacts, with no potential long-term negative impacts identified. The project is scheduled to start in the second quarter of 2007, with completion near the end of 2008.

Specific tasks to be accomplished:

- Replace 240,000 feet of one-inch rural distribution piping;
- Recoat interior and exterior of existing 150,000-gallon water storage tank; and
- Install new systemwide radio-read water meters.

Project Management

The district board of directors is responsible for ultimate management of the project, with the board chairman being the primary contact person. The district secretary/bookkeeper will establish and administer accounts, disbursements, and supporting documents relative to the project. The team also includes legal counsel and bond counsel. The certified operator for the district will assist the district and consultants in the day-to-day issues pertinent to the project. The proposed project management team is adequate to successfully manage the project from planning through completion and close-out.

Planning has been completed and the project stands ready to go to construction. Depending on project funding, construction will begin as soon as June 2008. The applicant has involved the public throughout the planning process, including public meetings conducted on March 28, 2005, and February 15, 2006. The applicant also provided numerous letters of support for the proposed project.

Financial Assessment

The budget form in the application is complete and reflects a total project cost of $2,194,700. The proposed funding strategy appears sound and realistic, and includes an RRGL grant ($100,000), TSEP Grant ($750,000), STAG Grant ($1,200,000), and DW SRF loan ($144,700). The project cost includes replacement of 240,000 feet of one-inch rural distribution piping, recoating the existing water storage tank, and installation of systemwide radio-read water meters. Detailed cost estimates were provided in the PER for the selected alternatives to support the project cost. The cost estimates appear adequate for the proposed project. Costs for bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. The estimated costs for each line item in the budget form appear accurate for the scope of the proposed project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$45,500	**$45,500**
Professional & Technical	$0	$0	$292,000	**$292,000**
Construction	$100,000	$0	$1,757,200	**$1,857,200**
Total	**$100,000**	**$0**	**$2,094,700**	**$2,194,700**

The status of the RRGL and TSEP grants will not be known until the ranking and review process is complete and legislative approval is obtained in 2007. The current average residential monthly water rates are $40 for in-town users and $95 for rural users. The projected rates following completion of the proposed project are $45.30 in town and $107.55 rural. All users would be assessed the applicable rate increase. The applicant states that if the district is not successful in obtaining the STAG grant, the district would be unable to provide the match for the TSEP grant. Due to the current high water rates (2.3 times the Target Rate), the district does not believe users would support additional charges for the project. If the amount of the STAG grant is smaller than requested, the project would need to be scaled back and phased in an effort to keep water rates near the projected rates. The most likely phasing options would be to eliminate a portion of the distribution system improvements from the project and move them to a future phase, for which funding would be sought in subsequent funding cycles. If the RRGL funds are not secured, the district could work with the Bureau of Reclamation (USBR) on its water resource program. The program provides grant/loan funds to implement a Water Conservation Plan, if the system has a water contract with the USBR. Currently, the district does not have a water contract with USBR. However, if it should join the Rocky Boy-North Central RWS, it would be eligible as the RWS will have a contract with USBR. If the TSEP grant is not received, the project would have to be substantially reduced to keep affordable user rates. Under this scenario, the district would likely elect to reapply for grant monies in the following cycle as opposed to funding the project through additional loans.

Benefit Assessment

The primary benefits to renewable resources are resource conservation, management, and preservation. The proposed project provides resource benefits by replacing 240,000 feet of leaky distribution piping. The applicant estimates that the total water loss in Loma's water system due to leakage is 10 million to 20 million gallons per year. The majority of the leakage is located along the one-inch rural piping, 90% of which will be replaced with this Phase 1 project. Replacement of the leaking pipes will preserve water quality and extend the life of the existing infrastructure. The project also includes installation of systemwide water meters. The water meters will encourage and likely result in water conservation.

Environmental Evaluation

Environmental impacts associated with this project were evaluated, with no long-term negative impacts noted. Minimal short-term, construction-related impacts (noise, dust, storm water runoff, etc.) were discussed. The PER and environmental checklist indicate that measures will be taken during the construction of the project to mitigate these impacts. The checklist noted that a few spill sites and leaking underground storage tank sites exist in the project area. DEQ spill information will be closely reviewed so that spill areas can be avoided during construction, if possible. Some minor disturbances to farm land will occur during installation of the new rural piping. These disturbed areas will be re-graded following installation of the piping. No land acquisition will be required for the project.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 12

Applicant Name	Panoramic Mountain River Heights County Water District		
Project Name	Panoramic Mountain River Heights Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	98,000	DW SRF
	$	191,500	TSEP Grant
Total Project Cost	**$**	389,500	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Panoramic Mountain River Heights County Water District was formed in 1975 and operates a community water supply system. The district's water supply capacity and distribution system is grossly inadequate to meet the community's needs and results in the district experiencing low water pressure regularly during the summer. Some users have reported their showers have completely stopped flowing. The water system consists of two wells with pumps, controls, and hydropneumatic pressure tanks. The distribution system consists of 1.5-inch, two-inch, and three-inch substandard quality polyvinyl chloride (PVC) pipe. In addition, the water services in this community are not metered, leading to excessive use on some services. Low pressure may result in contamination of the drinking water due to backflow. Backflow into the water system is a severe threat to public health and safety and is recognized by the U.S. Environmental Protection Agency (EPA) as one of the most significant threats to public water supplies in the United States.

The district proposes to install an additional well and pump system capable of providing enough water to meet the community's peak demands. The substandard and undersized distribution mains will be replaced with modern

six-inch diameter PVC pipe that will carry adequate water flow at minimal head losses. The community supports installing water meters on each service to help promote water conservation. The project will solve serious health and safety problems and enhance the common well-being of Montanans through the conservation, management, development, and preservation of the district's public water system.

Technical Assessment

Project Background

The Panoramic Mountain River Heights County Water District is about 10 miles from Kalispell and operates and maintains a centralized drinking water system serving approximately 77 residents (22 residences and one business). The original water system was installed in 1971 and the district has been vigilant in upkeep and improvement of the system in order to address supply problems and implement standard technologies. In March 2003 and April 2006, the district experienced breaks in the PVC water mains. Operation and maintenance (O&M) records indicate that the distribution system is constructed of thin-walled pipe that breaks easily. The system is served by two wells and a series of hydropneumatic tanks that have inadequate storage capacity to meet peak demands, particularly in warmer months. Virtually all system users have expressed significant concerns about system capacity and low fixture pressures.

Technical Approach

The project goal is to address the supply, distribution, and pressure problems by replacing problematic sections of the original PVC water mains and constructing an additional supply well. The district also intends to install individual water meters to better manage water usage and more equitably generate revenues to support the water system.

The alternative evaluation consists primarily of various supply options (regionalization, surface water, well), storage options (elevated tank, on-grade tank, booster pumps, concrete vs. steel), and distribution. The applicant compared the supply alternatives to the storage alternatives (since these two methods to resolve the same issue—low pressures). The no action alternative was considered and rejected. The recommended alternative consists of constructing a new, 120-gpm well, replacing approximately 2,150 lineal feet of PVC water main along the main road within the district. The applicant anticipates that the project will be designed in fall 2007, bid in early spring 2008, and constructed during the 2008 season.

Specific tasks to be accomplished:

- Construct new 120-gpm supply well, pump, controls, and associated piping;
- Replace approximately 2,150 lineal feet of undersized water main with new six-inch C900 pipe; and
- Install 23 new individual water meters.

Project Management

The proposed project management plan identifies adequate and capable staff to successfully administer and manage the proposed project from planning through completion and close-out. The applicant has discussed a continuing public involvement program to complement rigorous public involvement to this point. The project management plan provides for professional management of agreements and contracts associated with the proposed project.

The project planning has been completed and the project appears to be ready for design in 2007 and ultimate completion within the two years. The applicant's public involvement program has been very successful through the planning phase.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$31,000	**$31,000**
Professional & Technical	$0	$0	$53,400	**$53,400**
Construction	$100,000	$0	$205,100	**$305,100**
Total	**$100,000**	**$0**	**$289,500**	**$389,500**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a fairly detailed breakdown of unit construction costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Over 5% of the project costs are for administration of funding programs which appears high.

The district's funding strategy appears reasonable with TSEP and DW SRF funds in addition to the DNRC grant request. The other funding programs were contacted and applications made in accordance with the district's schedule.

Benefit Assessment

The primary benefits to renewable resources will be conservation through reduction of leakage from the district's water mains, increased management capability for the district's water through metering, enhanced conservation through water metering, and resource development through construction of a new water supply well.

Environmental Evaluation

Possible environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts are expected. Minimal short-term, construction-related impacts will be controlled through proper construction observation and control.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 13

Applicant Name	Montana Department of Natural Resources and Conservation (DNRC), Water Resources Division (WRD)		
Project Name	Smith Creek Canal Seepage Abatement and Rehabilitation		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	43,204	DNRC, In-Kind
	$	12,450	Nilan Water Users
	$	50,000	RRGL Loan
Total Project Cost	$	205,654	
Amount Recommended	$	100,000	Grant
	$	50,000	Loan

Project Abstract (Prepared and submitted by applicant)

The Nilan Water Project (NWP) is owned by the DNRC and operated by the Nilan Water Users Association. The project originally comprised a 10,092 acre-foot, off-stream reservoir; a 5.5 mile-long supply canal; and three delivery canals, totaling 23.5 miles in length. The storage water carried by the supply canal is provided by two sources, Smith Creek and Ford Creek. The Smith Creek branch of the supply canal is 3.7 miles long. Construction of the original project was completed in 1951, and ownership of the 16.5 mile-long Florence Canal was transferred to the water users in 1995.

Water from the project provides lifeblood for agriculture, fish and wildlife, and recreation. It irrigates ranch and farm land; recharges the flow of two local streams, Smith Creek and Elk Creek; supports local wildlife habitat; provides rainbow and brown trout fisheries; and offers a recreational resource to boaters, hunters, and fishers.

Due to deterioration from age, slope instability, and insufficient repairs, the Smith Creek branch of the supply canal now requires substantial rehabilitation. The right bank of the canal failed after the spring runoff in 2005, and it was shut down for the remainder of the irrigation season. The canal requires considerable work to repair.

When measured in May 2005, the canal lost 22% of its water at low flows; a higher loss is assumed at full flow. This considerable quantity of water is lost through the pervious canal channel. In addition to causing slope failure, seepage from the canal also floods hay fields and adversely affects private property in other ways. To compound these problems, the drastic water shortages suffered by the water users during the eight consecutive years of drought have brought some ranchers and farmers to the brink of bankruptcy. The Nilan Water Users Association wishes to stem the loss of water from the Smith Creek Supply Canal, stop the damage, and return this precious resource to beneficial use.

In order to address these concerns, the DNRC WRD proposes to rehabilitate the canal by (1) installing canal lining on the most pervious reaches of the canal and (2) fortifying the canal against slope failure by applying shotcrete on the left inner side slope. These measures will rehabilitate the NWP's infrastructure, protect private property, and conserve water.

For these reasons, the DNRC WRD is requesting a grant of $100,000 and a loan of $50,000 to rehabilitate the Smith Creek Supply Canal, and thereby prevent seepage, protect private property, and conserve water for more beneficial use to landowners and the general public.

Technical Assessment

Project Background

The Smith Creek Supply Canal is in northern Lewis and Clark County west of Augusta. The canal was constructed in 1951 as part of the NWP. Ongoing seepage problems in the supply canal account for loss of water from the system

as well as recent slumping of the canal bank. Rehabilitation of two sections of the canal is needed to stop the seepage and stabilize the canal bank. Installation of a canal lining is proposed to stop the seepage thus eliminating the water loss and preventing canal bank failure in the threatened sections of the canal. Shotcrete will to be applied in addition to the liner in one of the sections of the canal bank where further bank stabilization is needed.

Major alternatives considered were installation of different types of canal liners, or excavation and rebuilding of the failed slope area and then installation of a canal liner.

Technical Approach

A geotechnical investigation at the canal problem sites was conducted in February 2006 by a consulting firm. As stated in the report, the recommended alternative is to line sections of the supply canal experiencing excessive seepage to prevent the canal bank from becoming unstable from over saturation. An EPDM (ethylene propylene diene monomer) membrane liner was selected as it is the least expensive membrane liner considered and has the longest expected design life. The application of shotcrete will fortify a section of the most unstable canal bank to further prevent sloughing. Abatement of the seepage will eliminate water loss from the two sections of the supply canal thus preventing canal failure and providing a better water supply to Nilan Reservoir for irrigation, recreation, and fish and wildlife purposes. No long-term adverse environmental impacts are associated with this project.

Specific tasks to be accomplished:

- Finalize design of the liner and shotcrete installation;
- Install the EPDM liner in approximately 2,600 feet of the supply canal; and
- Apply the shotcrete to the unstable supply canal bank.

Project Management

The DNRC WRD staff will manage the planning, design, coordination, and implementation of the project. The WRD environmental coordinator will apply for necessary construction and environmental permits. The WRD coordinator will respond to public concerns and coordinate with adjacent landowners. Since Nilan Reservoir is a public facility, it is suggested that meetings be conducted to inform the public of the project.

The WRD project engineer will develop the final design, compose the contract documents, let the project for bids, manage the construction process, and manage the project's budget. In addition the project engineer will ascertain that the project design is appropriate and comprehensive and meets the project's time line and budget.

The construction portion of this project will be contracted, using the competitive bid process. The WRD will provide all construction oversight to ensure that construction activities achieve the design parameters within the time frame allotted by the schedule. Construction is expected to take about eight weeks and the DNRC staff engineer will be onsite daily and will report progress to the WRD weekly. The DNRC staff engineer will work in coordination with the project engineer to communicate with and provide technical assistance to the construction contractor.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$11,928	**$11,928**
Professional & Technical	$0	$0	$13,968	**$13,968**
Construction	$100,000	$50,000	$29,758	**$179,758**
Total	**$100,000**	**$50,000**	**$55,654**	**$205,654**

Based on the cost estimate provided in the application, the budget is sufficient to fund the proposed project. Unit costs used to develop the estimated cost of construction are reasonable, and a 2.58% liner price inflation contingency is included in the cost estimate. Justification for the proposed action as the most cost-effective approach is provided in the application.

Eighteen ranches and 46 households purchase 8,500 acre-feet of water from the NWP at a rate of $4.70/acre-foot. Repayment of the $50,000 RRGL loan would result in an increase of $ .50/acre-foot to a total of $5.20/acre-foot, still an affordable rate.

The recipient of both the grant and the loan portions of the funding package will be WRD. Under terms of a repayment agreement, loan payments will actually be generated each year by Nilan Water Users Association and made to WRD. If the loan and the grant are awarded, the project will be ready for start-up by August 2008.

Benefit Assessment

The main renewable resource benefit associated with the project is resource preservation. The proposed project will prevent the failure of the supply canal thus preserving the 200 cfs of water inflow to Nilan Reservoir.

Nearly equal in resource benefit is the conservation of approximately 1,832 acre-feet of water that would otherwise be lost to seepage. The project will also allow for better water management as well as possibly providing for additional development of irrigated acres.

The water supplied to Nilan Reservoir provides multiple benefits of irrigation, recreation, and wildlife/fisheries habitat.

Environmental Evaluation

Short-term negative impacts include dust, noise, and minor soil and vegetation disturbance during construction. Long-term positive impacts should occur from reduced water seepage from the system and increased/preserved inflow of water into Nilan Reservoir.

Funding Recommendation

The DNRC recommends grant funding of $100,000 and loan funding of $50,000 at 4.75% for up to 20 years, upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 14

Applicant Name	Goodan-Keil County Water District		
Project Name	Goodan-Keil Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	409,082	DW SRF Loan
	$	23,150	Local Funds
	$	532,232	TSEP Grant
	$	15,000	TSEP Planning Grant
Total Project Cost	$	1,079,464	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Goodan-Keil subdivision was developed in 1978. It is approximately four miles west of Missoula, north of the junction of Interstate 90 and Airport Way. In August 2004, the Goodan-Keil residents elected to form the Goodan-Keil County Water District to oversee the provision of water service. Currently 81, homes are on the public water system, with a maximum build-out of 87. There have been two significant improvements to the water system: booster station (1999), and construction of a replacement well (2004). The purpose of these improvements was to enhance the district's water supply.

The Goodan-Keil public water system has serious deficiencies that don't allow an adequate quantity of water to be delivered to homeowners. Very low pressures are regularly experienced during the irrigation season and the potential for negative pressures is high. One fundamental problem is that the existing storage tank is grossly undersized with only 31% of the district's average daily demand plus minimum fire demand. Next, the booster station frequently fails due to its reliance on an inefficient phase converter for power. Also, the well field piping and supply line from the well field to the booster station were poorly constructed and have ruptured on numerous occasions in the past five years. Finally, the distribution system does not have enough hydrants to provide adequate coverage for all homes within the district. The district is also interested in replacing all the original water meters with newer, remote-read meters.

The proposed $1,079,464 project would provide for a 150,000-gallon concrete storage tank, extension of a three-phase conductor and conversion of the booster station to three-phase power, 2,000 lineal feet of new six-inch diameter supply piping, 270 lineal feet of new two-inch diameter well field piping, seven new fire hydrants and valves, minor well head protection improvements, new meters for all 81 users, and an automated meter reading/ billing system. The improvements would effectively correct the current problems with the water system.

Technical Assessment

Project Background

The Goodan-Keil water system consists of 81 residential connections served by three wells, a 40,000-gallon water storage tank, an intermediate booster pumping station, and system distribution and transmission piping. The needs and problems identified in the application for the water system include lack of adequate storage for fire protection, old and inaccurate water service meters, substandard and undersized well manifold piping, substandard and undersized water transmission piping, reliability issues with the system booster pump station caused by single-phase electrical service, and lack of adequate fire hydrant coverage. The system has completely run out of water during high demand periods due to insufficient storage volume. Storage alternatives evaluated included sharing storage with an adjacent subdivision, a new 150,000-gallon steel or concrete storage tank, and the no action alternative. Booster station alternatives included converting the existing station to true three-phase power, relocation of the capacitor bank on the single-phase to three-phase converter to prevent continuing overheating problems, and construction of a completely new booster station. Piping alternatives included the no action alternative, replacement of the piping, and rerouting the transmission piping with the installation of thrust restraints. Water meter alternatives included replacement of the old meters and the no action alternative. An alternative for connecting and transferring the system to the Mountain Water Company was evaluated as an alternative to the overall project.

Technical Approach

The goals of the project are to improve water system reliability and efficiency, provide an accurate means for monitoring system usage, improve fire protection, and provide adequate storage for system demands. The alternatives selected to accomplish these goals include construction of a new 150,000- gallon concrete storage tank, installation of three-phase power for the intermediate booster station, replacement of undersized and substandard transmission and distribution piping, installation of new water service meters, and installation of additional fire hydrants. An automated meter reading and billing system will be included with the water meters.

The new 150,000-gallon concrete storage tank was selected because it will provide adequate storage for fire protection, has a longer useful life than a steel storage tank, and requires minimal maintenance (does not require painting). The installation of new three-phase power to the intermediate booster station will eliminate the system shutdowns currently experienced by the booster station and will increase the efficiency of the station, thus reducing energy consumption. Providing three-phase power for the booster station is also more economical than construction of a completely new booster station. The replacement of undersized and substandard piping will improve system flows, reduce energy consumption, and eliminate the periodic pipeline breaks that the system is currently experiencing. The addition of seven additional fire hydrants will improve fire protection for the district's residents.

Specific tasks to be accomplished:

- Construct a new 150,000-gallon concrete water storage tank;
- Convert the water system's booster pump station to three-phase power;
- Replace existing undersized and old well field and transmission piping;
- Elevate the casing of well number three;
- Install seven new fire hydrants; and
- Install new water service meters and implement a new billing system.

Project Management

The project management team consists of the district board, a project engineer, a funding administrator, the system operator, bond counsel, and the district's attorney. A nonprofit entity has also provided considerable technical assistance including direction for the creation of the district. The district's main point of contact will be the president of the board. The district's project engineer, grant administrator, operator, and a nonprofit entity have been identified as assisting the district with technical, financial, and regulatory requirements associated with the project. The district's bond counsel will oversee debt issuance. The proposed management team is sufficient for managing the proposed water system improvements project. The implementation schedule provided in the application is complete and reasonable given the scope of the project. Depending on funding, the project will start in the second quarter of 2007. Construction will start in the fourth quarter of 2007 and end in the third quarter of 2008.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$74,700	**$74,700**
Professional & Technical	$37,507	$0	$150,671	**$188,178**
Construction	$62,493	$0	$754,093	**$816,586**
Total	**$100,000**	**$0**	**$979,464**	**$1,079,464**

The budget form in the application is complete and reflects a total project cost of $1,079,464. The project cost includes construction of a new storage tank, distribution and transmission piping, installation of three-phase power to the intermediate booster pumping station, and installation of new water service meters. Detailed cost estimates were provided in the PER for the selected alternatives to support the project cost. The cost estimates appear adequate for the proposed project with one exception. The cost estimate for the water meters appear too low. A cost of $155 was estimated for installing each new water service meter (81 total). However, cost of the meters is a small portion of the project but contingency funds will probably cover the possible discrepancy in water meter cost. Costs for bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. The estimated cost for each line item in the budget form appears adequate for the scope of the proposed project.

The district currently has 81 residential hook-ups. The proposed funding package consists of a TSEP grant ($532,232), an RRGL grant ($100,000), and a DW SRF loan ($409,082). Status of the RRGL and TSEP grants will not be known until the ranking and review process is complete and legislative approval is obtained in FY 2007. The annual projected debt service for the SRF loan equates to $38.72 per month per user, which will raise the monthly water rate to $62.84. If the TSEP grant application is unsuccessful, user rates will increase to $113.22 per user, which may make the project unaffordable. The applicant states that if its grant applications are unsuccessful, it will apply to the RD Program and reduce the project scope by eliminating new water service meters.

Benefit Assessment

The primary benefits to renewable resources are resource conservation, management, and preservation. The proposed project includes installation of new water service meters to replace existing 20-year-old meters that are losing accuracy. New water meters will allow the district to better manage its water usage and promote water conservation. Consideration is being given to a new rate structure to improve system management and encourage conservation by making it more expensive to use excessive amounts of water. However, the meters will be deleted

from the project if costs come in over budget or if insufficient grant funding is received. Energy conservation will occur with some of the proposed project improvements that include providing efficient three-phase power to the district booster station (savings of up to 29,000 kwh/year) and pipeline improvements that will reduce pump energy demands. Construction of a a new 150,000-gallon water storage tank will allow the district to better manage its system by providing adequate storage for fire protection and high water usage periods.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts (noise, dust, storm water runoff, etc.) will be controlled through permitting and requirements in the construction specifications. A one-quarter acre parcel of land will be required to site the new 150,000-gallon storage tank.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 15

Applicant Name	Montana Department of Natural Resources and Conservation (DNRC), Water Resources Division (WRD)		
Project Name	Middle Creek Dam–Automated Instrumentation		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	37,525	DNRC, In-Kind
Total Project Cost	$	137,525	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The DNRC owns 24 high hazard dams. The term “high hazard” indicates the potential for loss of life below the dam should the dam fail. DNRC maintains a dam safety program at each dam that includes monthly monitoring of reservoir pool levels and embankment instrumentation during the irrigation season and annual dam safety inspections. The intent of the program is to verify that each dam is performing adequately and, as early as possible, identify any potential problems that may be developing. The reservoir pool level data is also used to manage reservoir operations. In the unlikely event of dam failure, DNRC has an Emergency Action Plan for each dam that specifies actions and available resources for emergency response personnel.

The purpose of this project is to enhance the current dam safety program at Middle Creek Dam by: (1) installing an automated instrumentation system at the dam to improve the ability of DNRC to monitor and evaluate both reservoir operations and embankment performance, and (2) evaluating the feasibility and cost of installing an early warning instrumentation system that would alert emergency response personnel in the event of a dam failure. Middle Creek Dam was selected due to its importance as a municipal water supply for Bozeman, the relatively large amount of development in the potential inundation zone, and the difficulty of accessing it during winter.

The funding in this request would be used to automate the existing instrumentation system at Middle Creek Dam and to evaluate the feasibility of an early warning system. The department is requesting a Renewable Resource grant of $100,000. The WRD will assume the lead role in project management, intending to contribute in-kind technical services amounting to approximately $37,525. The estimated cost of this project is approximately $137,525.

Technical Assessment

Project Background

This project will improve operations and performance monitoring at Middle Creek Dam and evaluate the potential for installing an early warning system. Middle Creek Dam is in the Gallatin National Forest directly south of Bozeman. Extensive development downstream from the dam would be impacted if the dam were to fail. The reservoir (Hyalite Reservoir) provides storage for irrigation and Bozeman municipal water as well as being a very popular recreation area with two campgrounds and a day-use area developed around the pool.

The automated instrumentation program for Middle Creek Dam is part of an ongoing effort by DNRC WRD to modernize the monitoring of dams owned by DNRC.

Technical Approach

Middle Creek Dam was rehabilitated and enlarged in 1991-92. At that time, electronic pressure transducers were installed in the monitor wells within the dam. The transducer wires extend to the ground surface near each well where monthly readings are made by manually connecting a read-out device to each set of wires. The automated monitoring system will extend the wires to a central location where a solar-powered data recorder and radio telemetry system will automatically collect readings and send the data to WRD personnel. Monitoring reservoir level, drain flow, and streamflow would also be automated.

The second part of the project would consist of a study to evaluate the cost and feasibility of installing an early warning system that would automatically alert emergency personnel in the event of unsafe or abnormal readings. The project sponsor will contract with a consultant to develop a preliminary design and evaluate the viability of an early warning system. The early warning system would utilize the automated data collection system and automatically notify emergency personnel at pre-determined alarm levels associated with the instrumentation. If an early warning system is pursued by the WRD, its installation would be done separately from this project.

The WRD has automated monitoring systems on two other projects. These systems have demonstrated their usefulness in managing reservoir operations and monitoring embankment performance.

The project schedule will begin when funds become available in July 2007. The WRD will request proposals from consulting firms and select the consultant for the emergency warning system study in fall 2007. The early warning study is to be completed by spring 2008. During summer and fall of 2008 the automated monitoring system will be designed, ordered, and installed.

Specific tasks to be accomplished:

- Early warning system consultant selection, September 2007;
- Preparation of early warning system feasibility study, September 2007-February 2008;
- WRD design of instrumentation system, July 2007-April 2008;
- Order instrumentation equipment, May-July 2008;
- Install instrumentation and implement monitoring program, August-September 2008; and
- Collect and analyze data from automated instrumentation, ongoing.

Project Management

The project will be managed by WRD staff. WRD personnel, including an instrumentation specialist, will design instrumentation and install the automated system. The WRD staff costs will be provided as in-kind services. A professional consulting firm with expertise in design of early warning systems will be contracted to perform the early warning system feasibility study. The roles of the project management team are clearly defined in the application and adequate funding for management is provided.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$37,525	$37,525
Professional & Technical	$23,846	$0	$0	$23,846
Construction	$76,154	$0	$0	$76,154
Total	**$100,000**	**$0**	**$37,525**	**$137,525**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. The selected alternative is the only alternative that meets the project goals. It also has the least long-term cost of the alternatives, and the selection as the preferred alternative is reasonable.

Benefit Assessment

The primary benefits to renewable resources are resource conservation and management. The project will provide improved data collection to better manage reservoir releases leading to improved delivery efficiency and conservation of stored water. The instrumentation enhances protection of the downstream public. The application documents significant support from local public safety officials and from a grade school within the dam failure inundation area.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse impacts will result. Beneficial results are primarily related to improved public safety. Short-term, construction-related impacts (from installation of the monitoring equipment) will be insignificant and will be controlled through permitting, landowner access permission, and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 16

Applicant Name	Polson, City of	
Project Name	Polson Water System Improvements	
Amount Requested	$ 100,000	Grant
Other Funding Sources	$ 1,072,750	DW SRF Loan
	$ 750,000	TSEP Grant
Total Project Cost	$ 1,922,750	
Amount Recommended	$ 100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The City of Polson manages a complex water system which utilizes a system of groundwater wells and storage reservoirs to supply water to three primary pressure zones. The city has made recent improvements to the water system, including a 1 million-gallon concrete storage tank and two new wells constructed in 2001 on the west side of the Flathead River. Despite the recent improvements, population growth in the area and deteriorating infrastructure continue to impact the city's ability to provide adequate water quantity to satisfy demand. This

situation is compounded by the fact that two of the existing water storage tanks, constructed in 1922, are in need of immediate replacement. These storage tanks exhibit severe deterioration, including spalling concrete, exposure of rebar, and the potential for complete failure. The tanks serve the lower pressure zone which includes most of the eastern downtown commercial area.

Water system modeling demonstrates that the lack of available storage during peak demand and restrictions in the distribution system piping impact the city's ability to provide sufficient water supply for fire protection in certain areas of the city. A substantial potential for property loss exists since Polson High School is in an area of low water availability. One area of town located near the highest storage reservoir has very low operating pressures and needs a booster station.

The proposed project is to replace the deteriorating storage tanks and preserve the ability to retain water resources for domestic and fire protection needs. Adequate storage will also allow the community to develop. With multiple pressure zones in the community, having adequate storage in each pressure zone allows the city to properly manage the water supply to meet required demand. The new booster station will limit the public health and safety hazard associated with inadequate water pressure. The new main and fire hydrant will help provide adequate water to fight fires should they occur at the high school.

Technical Assessment

Project Background

Polson has made several recent improvements to its water system including construction of a 1 million-gallon concrete storage tank and two new wells on the west side of the Flathead River. However, population growth in the area and deteriorating infrastructure have resulted in the need to further improve the water system. The major problems identified include low fire flows and operating pressures in several locations throughout the distribution system, deteriorating storage tanks at the Hillcrest site, a systemwide storage deficit, a future supply shortage, and the need for steel tank renovation at the Skyline tank.

Distribution system alternatives considered included improved fire protection for the high school, downtown fire protection and looping, new booster pump station for Mission View, and elimination of hydraulic restrictions and looping of mains at several locations. Storage alternatives included a new 500,000-gallon Hillcrest tank, additional storage at Woodbine and Skyline, and renovation of the steel Skyline tank. Water supply alternatives evaluated included drilling a new well near the southeast portion of town, drilling a new well on the west side of the Flathead River, and constructing a water treatment plant utilizing Hell Roaring Creek as a supply of surface water.

Technical Approach

The Preliminary Engineering Report (PER) identified nearly $8 million worth of recommended improvements. The city has selected three improvements to include with this Phase 1 project. Selection of the recommended improvements was based on several criteria including present worth, cost, O&M complexity, environmental impacts, public health and safety issues, operational flexibility, ease of implementation, current need, and city preferences. Goals of the project are to improve distribution storage facilities, improve low-pressure areas of the system, and improve fire flows to critical parts of the system.

Alternatives selected included construction of a new 500,000-gallon concrete water tank at Hillcrest, construction of a new booster pump station and distribution piping upgrades in the Mission View area, and installation of a new 12-inch main and fire hydrant to serve the high school. The new 500,000-gallon tank will replace two deteriorating 250,000-gallon concrete tanks at Hillcrest. The existing tanks have a high potential for complete failure in the near future. The booster pump station will significantly improve operating pressures in the Mission View area, thus decreasing the potential for low or negative pressures and minimizing the risk of distribution system contamination. The new 12-inch main and fire hydrant will enhance public safety by significantly improving available fire flows at the high school. All alternatives considered included an evaluation of environmental impacts. The only potential long-term impact may be visual aesthetic concerns due to the new Hillcrest tank, which could be minimized by

partially or fully burying the tank. The project is scheduled to start in the second quarter of 2007 and be complete near the end of 2008.

Specific tasks to be accomplished:

- Construct new 500,000-gallon concrete water storage tank at Hillcrest site;
- Construct new booster pump station and distribution piping improvements for Mission View area; and
- Install new 12-inch distribution piping and fire hydrant for high school fire protection.

Project Management

The project management team includes the city council, mayor, city clerk, public works superintendent, a project engineer/grant administrator, city treasurer, city attorney, and bond counsel. The city's primary contact is the mayor. The city's staff has been involved in numerous public facilities projects and is very familiar with the requirements of the funding agencies. The team will ensure proper coordination with funding agencies through use of project status reports, financial summaries, final close-out documentation, and ongoing communication. The proposed project management team is adequate to successfully manage the project from planning though completion and close-out.

Planning has been completed and the project stands ready to go to construction. Depending on project funding, construction will begin as soon as May 2008. The applicant has involved the public throughout the planning process, including public meetings conducted on May 2, 2005, and April 17, 2006. The applicant also provided numerous letters of support for the proposed project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$109,000	**$109,000**
Professional & Technical	$0	$0	$300,000	**$300,000**
Construction	$100,000	$0	$1,413,750	**$1,513,750**
Total	**$100,000**	$0	$1,822,750	$1,922,750

The budget form in the application is complete and reflects a total project cost of $1,922,750. The proposed funding strategy appears sound and realistic and includes a $100,000 RRGL grant, $750,000 TSEP grant, and $1,072,750 DW SRF Loan. The project cost includes construction of a new 500,000- gallon storage tank, new booster pump station and distribution piping upgrades for the Mission View area, and new 12-inch distribution piping and fire hydrant at the high school. Detailed cost estimates were provided in the PER for the selected alternatives to support the project cost. The cost estimates appear adequate for the proposed project. Costs for bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. Estimated costs for each line item in the budget form appear accurate for the scope of the proposed project.

The city projects a total of 1,726 residential equivalent dwelling units (EDUs) in 2008. The status of the RRGL and TSEP grants will not be known until the ranking and review process is complete and legislative approval is obtained in 2007. The current average residential water rate is $19.52, with a projected rate of $23.51 following completion of the proposed project. All users would be assessed the rate increase. The applicant states that if the city is not successful in obtaining either the RRGL grant or the TSEP grant, the budget would require further consideration with possible deletion of project components. Alternatively, the city could seek an increase in the DW SRF loan to cover the deficiency, or possibly pursue a CDBG grant.

Benefit Assessment

The primary benefits to renewable resources are resource conservation, management, and preservation. The proposed project provides conservation and management benefits by installing a new water storage tank to replace two failing tanks. Given the condition of the two existing tanks, there is a possibility of complete tank failure which

would result in a very large loss of water. Improvements will also allow the city to better manage fire flows to the high school. Natural resource preservation will occur by replacing two failing water tanks with a new tank, minimizing leakage and the potential for significant water loss in the event of complete failure of the existing tank(s). The new Mission View booster pump station will enhance water quality by minimizing the potential for low or negative system pressures resulting in increased contamination risk.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and the only potential long-term impact may be visual aesthetic concerns due to the new Hillcrest tank, which could be minimized by partially or fully burying the tank. Minimal short-term, construction-related impacts (noise, dust, storm water runoff, etc.) will be controlled through permitting and requirements in the construction specifications. A 0.5-acre parcel of land will be required to site the new 500,000-gallon storage tank.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 17

Applicant Name	Hill County		
Project Name	Beaver Creek Dam Seepage Control Berm		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	169,749	Applicant, Cash
Total Project Cost	$	269,749	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

This project seeks to mitigate seepage problems on the right abutment at Beaver Creek Dam by installing a seepage control berm. The dam is not in compliance with current standards for blow out (upheaval) or for exit gradient (piping). A seepage control berm will bring the dam into compliance with state standards and provide long-term protection from seepage-related piping of embankment materials.

Beaver Creek Dam was planned, designed, and partially funded by the Natural Resources Conservation Service (NRCS). The planning, design, and construction of the reservoir were authorized under authority of the Watershed Protection and Flood Prevention Act (PL-566). The dam and reservoir were completed in 1974. The dam is owned, operated, and maintained by Hill County. This structure was planned for multi-purpose use including flood prevention, irrigation, recreation, and fish and wildlife.

Seepage has been a persistent problem in the right abutment area since construction of the dam. High foundation uplift pressures have also been documented. The sinkhole was subsequently repaired; however, seepage and high pressures remain. According to the DNRC Dam Safety Section, blow out and progressive piping failure are possible and could occur catastrophically with little or no warning. Failure of the dam would cause extensive damage downstream to state highways, railroads, dwellings, and businesses in the Havre area.

In 2005, DNRC issued an operational permit for the dam with the condition that the seepage problem be addressed before 2009. Failure to meet the condition could result in reservoir level restriction. If the level restriction were implemented, usable storage capacity at the reservoir could be reduced from 3,600 acre-feet to 1,200 acre-feet or less.

Technical Assessment

Project Background

Beaver Creek Dam is in Hill County, approximately 13 miles south of Havre. Constructed by the Soil Conservation Service (now renamed the Natural Resources Conservation Service, or NRCS) in 1974 to provide flood control, water storage for irrigation, and a viable fishery, the dam and impounded reservoir have provided valuable economic and recreational benefits for area residents for over 30 years. As early as 1979, seepage near the right abutment of the dam has been a concern. In 1980, a drilling program was conducted by the Soil Conservation Service to determine the source of seepage; drain system improvements to reduce pressures within the earthen dam were made as a result of that investigation, but the problems have persisted.

A recent study has concluded that construction of a berm at the downstream base, or toe, of the dam will counteract uplift pressure and prevent structural failure of the dam. The other alternative addressed in the application included installation of wells to relieve internal pressures, both as a stand-alone feature or in combination with the proposed berm.

Technical Approach

As stated in a report prepared by a consulting firm in 2005, the recommended alternative for this project is to construct a 20-foot-high earthen berm at the toe of the dam near the right abutment. The berm will also incorporate an earthen filter and drainage system to collect seepage water, relieve internal pressures, and prevent the migration of fill materials from within the dam. Known as piping, this migration of material, if allowed to occur, could eventually lead to a potentially catastrophic failure of the dam. Although drilling wells to relieve water pressure within the dam could potentially reduce seepage, it was determined that the toe berm was the safest and most conservative alternative. Except for short-term construction impacts, no adverse environmental impacts occur with this approach.

Specific tasks to be accomplished:

- Prepare bid documents based on existing design criteria; and
- Construct a toe berm, toe drain, and earthen filter at the base of the dam in the area of the right abutment.

Hill County has been directed by DNRC to mitigate this seepage problem before operating permit re-issuance in 2009. If not corrected, it may be necessary to reduce the capacity of the reservoir from 3,600 acre-feet to 1,200 acre-feet, since the amount of seepage is proportional to the pool elevation of the reservoir. To meet this mandate, Hill County proposes to construct this project in fall 2007.

Project Management

Preliminary engineering and design of this project is complete except for preparation of actual bid documents. The project will be ready to proceed upon notice of award of this requested grant.

The Hill County Commission will have ultimate authority and responsibility for the expenditure of grant funds as approved by the Legislature as well as public notification and involvement. The engineer will provide oversight of all field and construction activities, and will be responsible for recommending progress payments to the construction contractor. Project coordination, reporting, and grant management will be delegated to an economic development district.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$5,000	$0	$1,000	**$6,000**
Professional & Technical	$45,000	$0	$0	**$45,000**
Construction	$50,000	$0	$168,749	**$218,749**
Total	**$100,000**	**$0**	**$169,749**	**$269,749**

Based on the cost estimate provided in the application, the budget is sufficient to fund the proposed project. Unit costs used to develop the estimated cost of construction are reasonable, and a 10% construction contingency is included in the cost estimate. Justification for the proposed action as the safest and most cost-effective approach is provided in the application.

Thirty-three irrigators purchase water from Hill County at $10.50 per acre-foot. A total of 1,800 acres is under irrigation. Although this project, as proposed, will not require a loan, future improvements may require borrowing. If this occurs, the cost per acre-foot for water will increase.

Matching funds for this seepage mitigation project are secure; the only outstanding budget component is the Renewable Resource grant. If awarded, the project will bid and construct in fall 2007.

Benefit Assessment

The primary renewable resource benefit associated with this project is resource preservation. The proposed project will prevent a 67% reduction in usable storage of the impounded reservoir by 2,400 acre-feet after 2009, the date that the operating permit must be renewed by DNRC. Preservation of the full storage capacity will result in measurable agricultural benefits as well as recreational benefits and the preservation of fish and wildlife habitat.

Secondary benefits include water conservation through runoff retention as well as resource management.

The project provides multiple benefits to the nearly 17,000 residents of the area and is well-supported by the general public as well as federal, state, and local governmental entities including NRCS and DNRC.

Environmental Evaluation

Short-term construction impacts including noise and dust will occur during the 90-day construction period. Dust abatement, point-source runoff abatement, and traffic control will be necessary near the construction site. Long-term environmental impacts are all beneficial and include positive impacts to the groundwater aquifer, surface water retention, elimination of a potentially serious threat to life and property below the dam, and preservation of the benefits currently provided by the dam and the reservoir it impounds.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 18

Applicant Name	Gallatin County, Hebgen Lake Estates RID 322		
Project Name	Hebgen Lake Estates Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	850,000	STAG Grant
	$	750,000	TSEP Grant
	$	1,069,000	WPC SRF Loan
Total Project Cost	$	2,769,000	
Amount Recommended	$	100,000	Grant
Project Abstract	(Prepared and submitted by applicant)		

Hebgen Lake Estates (HLE) is on the southern shore of Hebgen Lake just five miles north of West Yellowstone. The community consists of 183 households and is served by a small sewer collection system with a lift station that pumps raw wastewater to a single-cell aerated lagoon, with effluent to groundwater by infiltration cells. The existing lagoon leaks over 2 million gallons of wastewater annually, the aeration does not work, and the nearby monitoring wells demonstrate the presence of nitrates in the groundwater in excess of the state water quality standard of 10 mg/l. This is also a federal and state drinking water standard. The lift station is more than 20 years old and has failed once, resulting in raw sewage overflows on the ground within the community. Because of the condition of existing facilities and exceedance of the groundwater quality standard in a monitoring well, the Montana Department of Environmental Quality (DEQ) issued a violation letter to Gallatin County in 2003. A consent order was negotiated between Gallatin County and DEQ in November 2005, and a strict compliance plan and schedule have been developed that call for compliance by October 2008.

After detailed analysis of all available alternatives, it was apparent that rehabilitation of the existing facilities would not allow compliance and that construction of new facilities was necessary. The preferred alternative is aerated wastewater treatment lagoons, followed by storage ponds with effluent disposal by irrigation on crops. This solution will completely solve the problem by significantly reducing the pollution of groundwater resources and will result in compliance with the DEQ order.

Technical Assessment

Project Background

HLE is served by a wastewater collection system of eight-inch and 10-inch sewer mains which drain to a central lift station. The lift station pumps the wastewater to a single lagoon. The lagoon site also includes three infiltration/percolation ponds designed to provide groundwater discharge of the lagoon effluent. The lagoon was originally designed and approved as an aerated lagoon. The aeration system froze up and became damaged in the start-up phase of the system. Since that time, the system has functioned as a facultative lagoon, for which it was neither designed nor approved. The collection system is generally in sound condition. The lift station is almost 30 years old. The treatment site, has several deficiencies, most notably the wastewater in the lagoon leaks through the lagoon floor directly into the underlying groundwater. For the past couple of years, nitrate levels in Monitoring Well #3, at the treatment site have consistently been greater than the maximum contaminant level (MCL) of 10 mg/l. As a result, the DEQ has issued an administrative order against the system, requiring that improvements be made to bring the system into compliance with the nitrate MCL before October 31, 2008.

The only collection system improvement evaluated and recommended is to raise approximately 20 manholes and replace the existing concrete lids with new ductile iron castings. Lift station alternatives considered included rehabilitation of the existing station, new wet well/dry well lift station, new package submersible lift station, and a new suction lift station. Wastewater treatment/disposal options evaluated included facultative lagoons with spray irrigation of effluent, aerated lagoons with spray irrigation of effluent, sequencing batch reactor (SBR) with infiltration ponds, and SBR with infiltrators. All of the treatment/disposal options would be designed to bring the system into compliance with the nitrate MCL.

Technical Approach

The primary goal of the project is to bring the system into compliance with the nitrate MCL for water quality standards. The recommended improvements include construction of a new two-cell facultative lagoon treatment system with effluent spray irrigation, a new package submersible lift station, and manhole raising and lid replacement for approximately 20 collection system manholes. Selection of the preferred alternative for the new treatment and disposal system was based on several criteria including capital cost, annual O&M cost, treatment performance, environmental impacts, expansion capability, aesthetics, and O&M complexity. The alternative consisting of new facultative lagoons and an effluent spray irrigation system was ranked the highest, based largely on low annual O&M costs and ease of operation. Selection of the preferred alternative for the lift station was based on capital cost and O&M simplicity. On page 5.7 of the PER it is noted that the irrigated crop at the USFS site could be trees. Appendix BB included irrigation analysis for alfalfa and grass hay/pasture, but no analysis was provided for a tree

crop. All alternatives considered included evaluation of environmental impacts. Construction of the new lagoon and irrigation site may result in adverse impacts to wildlife habitat. Both grizzly bears and lynx inhabit the area and are listed as Montana species of special concern. The grizzly is also federally listed as threatened. Depending on the final location of the new treatment facility, there may be some short-term impacts on grizzly and lynx habitat. The project is scheduled to start in the second quarter of 2007 and be complete by October 2008.

Specific tasks to be accomplished:

- Construct new two-cell facultative lagoon system and effluent spray irrigation system;
- Construct new package submersible lift station; and
- Raise approximately 20 collection system manholes to grade and replace the existing concrete lids with new ductile iron castings.

Project Management

The county commission and chairman will be responsible for all official contacts with funding and regulatory agencies and approval of contracts and drawdown requests. The county financial officer will be responsible for management of and record keeping for all project funds. The county grants administrator will be designated as the grants manager, with responsibility for overall grant management and assuring compliance with applicable federal and state requirements for the funding agencies. He will also serve as the county's liaison with all project funding agencies. The county attorney will review and advise the commission regarding any proposed contractual agreements and provide any other legal guidance as requested. The project engineer will be responsible for preparation of engineering design plans and specifications as well as construction inspection. The proposed project management team is adequate to successfully manage the project from planning through completion and close-out. Planning for the project is well under way.

There are, however, a couple of significant tasks to be completed before the project is ready for construction. The county needs to form a county sewer district to oversee and manage the wastewater system. The wastewater system is currently under the jurisdiction of Gallatin County. The second major task is to purchase or obtain a long-term lease for the 65 acres of land needed for the wastewater treatment and disposal site. The PER identified two potential locations, one privately owned and the other owned by the USFS. To date, no formal negotiations have been conducted with either landowner.

The project implementation schedule indicates that construction will begin as soon as April 2008, with completion scheduled for October 2008. Throughout the planning phase of the project, the county has had numerous meetings open to the public where the water system has been discussed, including six public meetings conducted between February 28, 2006, and May 3, 2006. The county intends to continue utilizing these venues to inform the public and solicit input during design and implementation of the project. In addition, the county will form an advisory committee of local residents to serve throughout the remaining planning, design, and construction. A public hearing on formation of the water and sewer district is anticipated in summer 2006 with a district election a few months later. Public meetings will be conducted and newsletters distributed at key milestones throughout the implementation of the project. The project management plan adequately addresses public involvement.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$150,000	**$150,000**
Professional & Technical	$15,000	$0	$280,000	**$295,000**
Construction	$85,000	$0	$2,239,000	**$2,324,000**
Total	**$100,000**	**$0**	**$2,669,000**	**$2,769,000**

The budget form in the application is complete and reflects a total project cost of $2,769,000. The proposed funding strategy appears sound and realistic and includes an RRGL grant ($100,000), TSEP grant ($750,000), STAG grant ($850,000), and WPC SRF loan ($1,069,000). Detailed cost estimates were provided in the PER for the selected

alternatives to support the project cost. The cost estimates appear adequate for the proposed project. Costs for bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. The estimated costs for each line item in the budget form appear accurate for the scope of the proposed project. The status of the RRGL and TSEP grants will not be known until the ranking and review process is complete and legislative approval is obtained in 2007. The applicant states that the status of the STAG grant should be finalized no later than January 2007. The current average residential monthly sewer rate is $9. The projected rate for all users following completion of the proposed project is $51, assuming all grant monies are awarded. The applicant states that if the project is not successful in obtaining the STAG grant, it will likely pursue obtaining a larger loan and increasing user rates to finance the debt service. The application discusses realistic funding cycles and cash flow estimates.

Benefit Assessment

The primary benefits to renewable resources are resource management, development, and preservation. Resource management and development will be realized by implementation of a spray irrigation system to dispose of the treated effluent. The effluent will be applied to a yet-to-be-determined crop with a portion of the effluent eventually infiltrating to the groundwater. Currently, the wastewater effluent leaks directly from the lagoon into the groundwater, with no direct beneficial re-use of the water. Resource preservation will be achieved by bringing the system into compliance with the nitrate MCL for water quality. Under the current wastewater treatment/disposal system, elevated levels of nitrates (greater than 10 mg/l) are discharged directly into the groundwater under the treatment site. The proposed project will reduce nitrate levels, thus protecting and enhancing the groundwater quality in the area.

Environmental Evaluation

The applicant adequately addresses the environmental impacts associated with its proposed wastewater system improvements project, with no long-term negative impacts noted. An environmental checklist was included with the application and appears complete. Short-term impacts associated with construction have been identified in the PER and environmental checklist. They include noise, traffic, dust, energy consumption, and storm water runoff. The PER indicates that measures will be taken during construction to mitigate these impacts. Construction of the new lagoon and irrigation site may result in adverse impacts to wildlife habitat. Both grizzly bears and lynx inhabit the area and are listed as Montana species of special concern. Depending on the final location of the new treatment facility, there may be some short-term impacts to grizzly and lynx habitat. Spray irrigation of the effluent will have a beneficial environmental impact and should result in better vegetation growth and provide additional shelter for the animals. Approximately 65 acres of land will be requried for construction of the new treatment and disposal site.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 19

Applicant Name	Three Forks, City of	
Project Name	Three Forks Wastewater System Improvements	
Amount Requested	$ 100,000	Grant
Other Funding Sources	$ 1,350,000	STAG/ACOE 595 Grant
	$ 750,000	TSEP Grant
	$ 1,338,738	WPC SRF Loan
Total Project Cost	$ 3,538,738	
Amount Recommended	$ 100,000	Grant

Project Abstract (Prepared and submitted by applicant)

Three Forks is served by a central collection and treatment system. The treatment facility consists of two facultative lagoons, a storage lagoon, and two infiltration/percolation cells. Discharge is to groundwater and the Madison River.

The storage lagoon leaks excessively and the facility is undersized for existing flows, resulting in inadequate treatment. These conditions result in marginally treated wastewater reaching groundwater. Over time, nutrients and bacteria discharged to groundwater will lead to degradation/contamination of the nearby recreational ponds, resulting in a public health hazard. The configuration of the lagoon discharge outfall results in nondisinfected wastewater flowing down the bank of the river. The Montana Department of Environmental Quality (DEQ) and Montana Department of Fish, Wildlife & Parks (DFWP) have received several complaints due to odor, effluent color, and algae growth associated with the exposed discharge. Due to the potential for contact with the discharge, DEQ has indicated that the city's next discharge permit will have a fecal coliform limit.

Proposed improvements include construction of a three-cell aerated lagoon and a two-cell (14-acre) constructed wetlands treatment system. The beneficial re-use of domestic wastewater for constructed wetlands represents development of a natural resource. The wetlands will provide additional treatment and nutrient removal and will provide habitat for wildlife and waterfowl. The treatment ponds and wetlands will have a synthetic liner to prevent leakage. The point of discharge for the outfall line at the river will be reconfigured and the pipe submerged. The lagoons and wetlands will improve effluent quality, resulting in improved in-stream water quality. The discharge will be disinfected and treatment efficiency will improve so that public and environmental health hazards are significantly reduced and a renewable resource is protected and preserved.

The project will solve serious health and safety problems and enhance the common well-being of Montanans through the conservation, management, development, and preservation of the city's wastewater system.

Technical Assessment

Project Background

Three Forks operates and maintains a centralized wastewater collection/treatment system serving approximately 1,779 people. The original wastewater system was constructed in 1916. The city has been proactive in making improvements to the system to address problems including growth issues and implemenation of standard technologies. Of the roughly 51,000 lineal feet of gravity collection system piping in the system, approximately half is original clay pipe that experiences significant infiltration/inflow (I&I) due to deterioration and high groundwater. The city's main lift station is in relatively good structural condition, although the pumps/motors are over 20 years old and may be nearing the end of their useful life. The treatment system, upgraded in 1982, consists of two facultative lagoons, a storage pond, and two infiltration/percolation (I/P) beds. Discharge from the treatment system is primarily through groundwater (lagoon leakage and I/P beds) and approximately 20% is discharged to the Madison River. Discharge from the facility is regulated by an MPDES permit with typical equivalent to secondary treatment standards. No

violations have been documented. It is suspected that discharge to groundwater has adversely impacted several recreational ponds down-gradient of the treatment plant. Furthermore, the discharge to surface water occurs in a high recreational use area of the Madison River. The discharge is currently not disinfected.

Technical Approach

The project goal is to replace three pumps in the main sewage lift station to enhance dependability and efficiency. Proposed improvements to the treatment system include implementation of a three-cell, partially mixed aerated treatment facility, followed by a two-cell constructed wetland, ultraviolet disinfection, and continuous discharge to the Madison River. Two new effluent pumps will be installed in the city's existing effluent lift station, and the existing force main will be utilized. The discharge pipe will be reconfigured from the current bank discharge to a submerged discharge. The city also intends to address the I&I problems in a future project by rehabilitating 25,200 lineal feet of the original clay pipe with cured-in-place pipe lining.

The alternative evaluation consists primarily of various treatment/discharge options for the treatment system. The preferred alternative was selected based on cost effectiveness and a socioeconomic impact evaluation. The no action alternative was considered and rejected. Environmental impacts will generally be short-term, construction-related. Floodplain and wetland issues will require further investigation as the project proceeds. The applicant anticipates that funding will be finalized by May 2007, treatment project design will occur in summer 2007, bid in early spring 2008, and constructed during the 2008-09 construction seasons.

Specific tasks to be accomplished:

- Replace three raw wastewater pumps in the city's main lift station;
- Replace the existing two-cell facultative lagoon and I/P beds system with a three-cell, membrane-lined, partially mixed aerated lagoon system followed by a two-cell constructed wetland, and UV disinfection;
- Install new pumps in the city's existing effluent discharge lift station; and
- Reconfigure the discharge to submerged.

It is important to note that the PER discusses rehabilitation of the collection system in order to reduce I&I. This phase of the project does not include collection system rehabilitation.

Project Management

The proposed project management plan identifies adequate and capable staff to successfully administer and manage the proposed project from planning through completion and close-out. The plan addresses ongoing public involvement. The project management plan provides for the professional management of agreements and contracts associated with the proposed project and has sufficient budget to fund project management.

The project planning has been completed and the project appears ready for design in 2007 and ultimate completion within three years. The applicant's public involvement program has been successful during the planning phase, and the city will continue to seek input from the users throughout the process.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$186,238	**$186,238**
Professional & Technical	$0	$0	$558,500	**$558,500**
Construction	$100,000	$0	$2,694,000	**$2,794,000**
Total	**$100,000**	**$0**	**$3,438,738**	**$3,538,738**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a fairly detailed breakdown of unit construction costs. Material, labor, and equipment costs used to develop the budget appear

reasonable and adequate. Grant/loan administration budget of $45,000 is relatively high, although for a project expected to span two construction seasons, it may be reasonable.

The city's funding strategy appears reasonable with TSEP, STAG/ACOE 595, and WPC SRF loan funds in addition to the DNRC grant request. The other funding programs were contacted and the applications made in accordance with the city's schedule. The WRC SRF program was contacted and the Three Forks project is included on the priority list and should be a good candidate for the anticipated loan. Debt service was properly calculated for a 20-year loan. The applicant is not on the preliminary funding list for either ACOE 595 or STAG.

Benefit Assessment

The primary benefits to renewable resources will be conservation through the reduction of leakage from the city's treatment facility, increased discharge of better-treated effluent to surface water, and increased management capability for the city's wastewater. Other primary benefits include preservation of the Madison River water quality through enhanced treatment and preservation of down-gradient recreational ponds through elimination of the facility's groundwater discharge.

In addition, secondary benefits from the proposed project include habitat and recreational benefits through improvements to the Madison River and pond habitat recreational opportunities and fisheries. All of these benefits are long-term.

Environmental Evaluation

Most of the possible environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The applicant did not fully evaluate possible impacts to, floodplains or possible wetlands, although impacts are expected to be minor. Minimal short-term, construction-related impacts will be controlled through proper construction observation and control. Secondary reviewer indicated further evaluation of the floodplain issue is necessary since all treatment improvements will occur in the designated floodplain.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 20

Applicant Name	Mineral County Saltese Water and Sewer District		
Project Name	Saltese Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	424,000	CDBG Grant
	$	750,000	TSEP Grant
	$	45,800	WPC SRF Loan
Total Project Cost	$	1,319,800	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

Saltese is an unincorporated community in northwestern Mineral County, approximately 10 miles east of the Idaho/Montana state line along the Interstate 90 corridor. The community is served by on-site wastewater treatment and disposal systems consisting of standard septic tanks and drainfields. Local residents and businesses rely on

individual wells as their sole source of potable water. Well depths in the community are shallow, with 70% of wells having a static water depth of less than 15 feet. Approximately 83% of the lots within the district are 0.25 acre in size or less. Because of the small lot size it is difficult, if not impossible, to find sufficient space to locate replacement drainfields and maintain proper separation between property boundaries and individual drinking water wells that serve each home. In some cases, existing septic tanks and drainfields are submerged in groundwater or at the water table elevation. It is also suspected that many of the older septic tanks leak. Mineral County has indicated that development within the community utilizing on-site septic systems for lots less than 0.50 acre will not be allowed.

The proposed project will include construction of a standard gravity collection system. The new collection system will include an eight-inch polyvinyl chloride (PVC) sewer main, concrete manholes, and a four-inch PVC sewer service pipe. The collection system will be designed to deliver the wastewater to a raw sewage lift station; then the sewage will be pumped to a common septic tank. All existing septic tanks will be abandoned. The proposed treatment process will utilize one common septic tank to provide primary treatment of sewage before discharge of effluent to groundwater via a dosed drainfield. The treatment site is outside the floodplain, with adequate depths to groundwater for required treatment and disposal.

Technical Assessment

Project Background

The Mineral County Saltese Water and Sewer District comprises 26 residential homes and four commercial facilities. The Saltese wastewater system consists of individual on-site septic tanks and drainfields.

The needs and problems identified in the application for the wastewater system include:

- On-site septic systems in the 100-year floodplain, which increase the potential for surface water contamination;
- Small lot sizes make it difficult or impossible to locate replacement drainfields. Setback requirements for septic systems cannot be met due to existing small lot sizes;
- Shallow groundwater contributes to the potential for septic system failure and is more vulnerable to contamination from the existing on-site septic systems. Residents obtain drinking water from individual wells subject to contamination from on-site septic systems;
- The county has documented cases of failing on-site septic systems; and
- Further development of 0.50 acre and smaller lots utilizing on-site septic systems will no longer be allowed by Mineral County.

Treatment alternatives evaluated in detail to address the above needs and problems included a septic tank and dosed drainfield, a septic tank with advanced phosphorous removal and dosed drainfield, and facultative or aerated storage lagoons with wastewater disposal by land application. Other alternatives were evaluated in the alternatives screening section of the PER, such as mechanical sewage treatment plants, but were eliminated because of excessive cost or inability to meet project goals. Collection system alternatives evaluated included a standard gravity sewage collection system, small diameter gravity collection system with septic tanks for solids removal, and various pressurized (pumped) collection systems.

Technical Approach

The goals of the project are to eliminate problems occurring with existing on-site septic systems and the potential for groundwater and surface water contamination. The alternatives selected to accomplish these goals are: (1) construction of a new central septic tank and dosed drainfield to serve the entire community, and (2) construction of a central gravity sewage collection system. The collection system will include a lift station to pump sewage to the new treatment system. The new treatment system will be constructed outside of the 100-year floodplain.

The gravity collection system was selected because it is simple to operate and maintain, and it is a reliable means to collect and transport sewage. Only one lift station will be required to pump sewage to the treatment system as compared to the pressurized collection alternatives that require a pump located at each hookup. The gravity system

will also allow removal of the septic tanks currently located within the 100-year floodplain. The gravity collection system alternative had the lowest capital cost and annual operation and maintenance (O&M) cost. The central septic tank and dosed drainfield alternative was selected due to its low capital cost and low annual O&M cost. The central septic tank and drainfield option is also the least mechanically intensive and most reliable alternative. It will be easy for the district to operate and maintain the selected treatment alternative. The selected alternative will reduce pollutant impacts to both groundwater and surface water in and near the district.

Specific tasks to be accomplished:

- Construct a new gravity collection system (5,300 feet), sewage lift station, and related appurtenances; and
- Construct a new community septic tank and drainfield system to replace the existing on-site septic systems.

Project Management

The project team consists of the district board, the district board president, the district clerk-treasurer, and the project engineer, who will also serve as the funding administrator. The district's main point of contact will be the president of the board. The president of the board will monitor its consultants and sign off on all required documentation and certification. The district clerk-treasurer will be responsible for managing the transfer of grant and loan funds, entering all transactions into the district accounting system, and will assist with the monthly pay and drawdown requests. The project engineer/funding administrator will be responsible for overall management of the project, complying with funding agency requirements, project design, construction administration, and construction inspection. The district will hire a certified operator to operate and maintain the new wastewater system. The designated management team is sufficient for managing the proposed wastewater system improvements project. Depending upon funding, design of the project improvements is scheduled to start in November 2007. Construction is scheduled to start in May 2008 and will be complete by October 2008. The schedule is adequate for the proposed improvements and is sufficiently detailed.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$53,300	**$53,300**
Professional & Technical	$0	$0	$196,000	**$196,000**
Construction	$100,000	$0	$970,500	**$1,070,500**
Total	**$100,000**	**$0**	**$1,219,800**	**$1,319,800**

The budget form in the application is complete and reflects a total project cost of $1,319,800. The project cost includes construction of a new wastewater treatment and collection system. Detailed cost estimates were provided in the PER for the selected alternatives to support the project cost. The cost estimates appear adequate for the proposed project. Costs for bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. The estimated costs for each line item in the budget form appear accurate for the scope of the proposed project.

The district currently has 26 residential and four commercial hookups. The proposed funding package consists of a TSEP hardship grant ($750,000), an RRGL grant ($100,000), a CDBG grant ($424,000), and a WPC SRF loan ($45,800). The status of the RRGL and TSEP grants will not be known until the ranking and review process is complete and legislative approval is obtained in FY 2007. The district must complete an income survey (slated for fall 2006) to determine if it is eligible for a CDBG grant. The CDBG grant application will not be submitted until May 2007. If the results of the income survey are not favorable, the applicant has indicated that CDBG funds would still be applied for and targeted for the low to moderate income families in the district. If the district is not eligible for a hardship grant from TSEP, the TSEP grant would be limited to $15,000 per household, which means the maximum available grant from the TSEP program would be $390,000.

The annual projected debt service for the WPC SRF loan equates to $10.38 per month per user. The projected annual O&M cost for the proposed improvements is $10,470, which equates to $27.27 per month per EDU. The total projected monthly user rate is $37.65. If either the TSEP or CDBG grant application is unsuccessful, user rates will have to be raised to over $140 per user, which may make the project unaffordable. The applicant states that if any of its grant applications are unsuccessful, it will re-submit grant applications in the next funding cycle and apply for a State and Tribal Assistance Grant (STAG).

Benefit Assessment

The primary benefits to renewable resources are resource management and preservation. Nutrient loading from the existing on-site septic systems on groundwater and surface water will be reduced, improving water quality. This project contributes to the goal of reducing nutrients in the Clark Fork River Basin and will help meet the goals of the Clark Fork River Voluntary Nutrient Reduction Program (VNRP) and the Tri-State Water Quality Council. The applicant indicates that the proposed improvements will preserve the quality of the groundwater and surface water in and near the district by reducing nutrient and pollutant loadings. The project will contribute to improving or maintaining groundwater quality, thus allowing continued use of the groundwater as a drinking water source. Surface water in and near the district (St. Regis River) will be protected, allowing recreational use to continue. On-site septic systems will be removed from the floodplain, providing further protection to area surface water resources.

The proposed project involves construction of a centralized sewage collection and treatment system to replace on-site septic systems. The project does not include implementation of new or improved efficiencies and utilization practices. Water meters are not included as part of the proposed improvements. The current project does not include any direct resource development benefits.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts (noise, dust, storm water runoff, etc.) will be controlled through permitting and requirements in the construction specifications. The State Historic Preservation Office is requiring completion of a cultural resources survey before construction of the project. A four-acre parcel of land will be required to site the new septic tank and drainfield.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 21

Applicant Name	Carbon Conservation District		
Project Name	Planning Tools for Developing and Managing Water Resources Near Red Lodge: Hydrogeology and Water Balance of the East and West Bench Aquifers, Phase 1		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	9,091	Applicant, In-Kind
	$	23,751	MBMG, Indirect
Total Project Cost	$	132,842	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

This project will collect the data needed to develop a baseline understanding of the hydrogeology and water balance of the aquifers underlying the East and West Bench aquifers of Rock Creek near Red Lodge. Project results will provide information to evaluate and manage the effects of climate, changes in irrigation practices, and changes in land use on groundwater quality and availability in the alluvial aquifers underlying this area. Residents of this rapidly growing part of Carbon County depend on groundwater in alluvial sand and gravel aquifers as the primary, if not the sole, source of water. This aquifer is recharged primarily by flood irrigation and ditch leakage. Decreases in recharge because of drought or changes in irrigation practices or land use will reduce groundwater availability. Also, the alluvial aquifer is shallow and vulnerable to contamination, but limited water quality data have been collected in the area.

As part of a preliminary investigation, water levels were monitored in wells underlying the West Bench near Red Lodge. The Montana Bureau of Mines and Geology (MBMG) has recently collected additional data as part of a regional groundwater investigation of Stillwater and Carbon counties. These data sets are extremely valuable because they document background water-level trends and seasonal fluctuations. Unfortunately, the short period of record and limited frequency of measurements are not at the detail required to understand the surface water/groundwater relationships needed to make land-use and planning decisions. Acquiring enough surface and groundwater information to understand the hydrologic balance of these alluvial aquifers is essential for planning and management of this critical and increasingly scarce groundwater resource.

Proposed tasks for the project include conducting an inventory of wells, springs, irrigation ditches, and streams in the area. Dedicated test wells will be installed for measuring water-level fluctuations under different recharge scenarios and for conducting pumping tests to determine aquifer hydraulic properties. Most of the test wells will be near suspected recharge areas (irrigated fields and irrigation ditches). Seepage runs will be conducted on many of the significant irrigation ditches to quantify irrigation losses, believed to be the primary source of recharge to the alluvial aquifer. Products of the project will include detailed maps of aquifer distribution and groundwater availability, groundwater flow, drilling depths, groundwater quality, and nitrate concentrations. The work will ultimately focus on developing a water balance of alluvial aquifers underlying the East Bench and West Bench. A report will be prepared describing the activities and conclusions of the project. All data will be available through the MBMG Groundwater Information Center (GWIC) database. Public meetings will be conducted throughout the project to disseminate project information and to gain input and identify concerns.

Technical Assessment

The purpose of the project is to collect groundwater quantity, groundwater quality, and groundwater/surface water interaction data that will provide information useful to East Bench and West Bench residents and Carbon County government officials. The data is needed to better understand the effects of drought, changes in irrigation practices, and increased residential land use in the area, as well as to provide important data for evaluating growth in the basin.

Project Background

Land use in the study area is changing from irrigated agriculture and pasture land to residential development. Groundwater is the only source of potable water outside of Red Lodge. Rapid growth and diversification of land use has led to a demand on limited groundwater resources in the area. This study proposes to collect information regarding groundwater availability, water level fluctuations, water quality, and groundwater/surface water interaction that would contribute to informed land use and water resource decisions in the Rock Creek watershed. An alternative to the proposed project is to not conduct the study. Other funding sources were researched but not available.

Technical Approach

The project goal is to collect and evaluate hydrogeologic data for use in characterizing groundwater underlying the East Bench and West Bench paralleling Rock Creek from Red Lodge north to the town of Roberts in Carbon County. Data collected would be used to help area residents, planners, and resource managers to better understand groundwater resources of the area.

The main objectives of the project are to:

- Collect groundwater and surface water data;
- Characterize the groundwater and surface water systems; and
- Disseminate the project information to the Carbon County residents in useful and available formats.

The results from this study would be posted on the MBMG GWIC database. Results would include maps characterizing groundwater flow and availability, an understanding of how drought and changes in land use and irrigation practices can affect future availability and water quality of the alluvial aquifer system, and a hydrologic water balance of the alluvial aquifer system. The preferred alternative was selected based upon results needed to obtain the described objectives.

Specific tasks to be accomplished:

- Collecting groundwater and surface water data, including completing an inventory of wells, springs, and surface water to collect hydrologic and water quality data; installing dedicated monitoring and test wells to collect additional aquifer data; and performing groundwater and surface water monitoring;
- Characterizing the groundwater and surface water systems including evaluating and interpreting the project data; and
- Disseminating the project information to Carbon County residents in useful and available formats, including conducting public meetings, preparing a project report, and distributing the report on the MBMG website.

Project Management

The project will be managed by Carbon Conservation District (CD) administrator. The Carbon CD administrator will manage the work completed by the principal investigator and the MBMG, and will interact with other stakeholders to ensure that appropriate data are collected and that the public has the opportunity to participate in the data collection and decision-making process. Roles of the project manager are defined in the grant application and are appropriate given the budget allocations and project approach. The project budget allows funding to support the financial and administrative aspects of the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$9,091	$0	$9,091	**$18,182**
Professional & Technical	$75,909	$0	$23,751	**$99,660**
Construction	$15,000	$0	$0	**$15,000**
Total	**$100,000**	**$0**	**$32,842**	**$132,842**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provides a detailed breakdown of technical unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Administration costs appear high and should be reassessed before contracting. No costs for the various alternatives are provided, but justification for the proposed action as the least-cost alternative in the long run is provided and is reasonable.

Aside from the direct benefit to individual landowners who will host monitoring wells (and allow access to and across their property), the proposed investigation will positively assist residents in the study area by providing complete hydrogeologic data for use in reaching informed decisions for this portion of Carbon County. Based on the records found in the GWIC database, the number of water supply wells in the study area has increased from roughly 89 in 1980 to 421 in 2005. These groundwater users, as well as surface water rights holders and recreational users, will directly and indirectly benefit from the decisions based on realistic and quality data collected during this study.

Benefit Assessment

The primary benefits to renewable resources are resource management and resource preservation. The proposed project would result in measurable benefits of groundwater and groundwater/surface water interaction management through identification of areas of critical concern vulnerable to water availability and water quality impacts. The information will be important to help manage land use, irrigation, development, and other water resource decisions. The proposed project would provide the necessary data for use in understanding and protecting the limited groundwater and surface water resource.

In addition, secondary benefits from the proposed project include addressing resource conservation and resource development issues. As the land use on the East Bench and West Bench changes from traditional agricultural uses to more residential development, the potential exists to change (reduce) groundwater recharge to the underlying alluvial aquifer. Since this aquifer is the only source of potable water for water users in the study area outside of Red Lodge city limits, depleted groundwater sources can be crippling. This study plans to identify and evaluate recharge potential and water quality of the alluvial aquifers in the study area and help identify areas where the aquifers are particularly vulnerable to land use changes.

All of the above benefits are relatively long-term and would be quantified through use of data collected as part of this project. The data will be used for future groundwater modeling in the area. If this hydrogeologic data were not obtained, modeling would not be as effective. Future groundwater beneficial-use permit application reviews will have sound site-specific hydrogeologic data for use in making informed decisions as a result of the data collected as part of this study.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The beneficial results are primarily related to the collection of new hydrogeologic data for use in evaluating the groundwater and surface water systems along the East Bench and West Bench study area in Carbon County. In addition, land use planners will benefit from collection of this data. The information and data collected as part of this study will be available to the regulatory agencies and general public for use in future decision-making processes. Minimal short-term, construction-related impacts (from installation of the monitoring wells) will be controlled through permitting, landowner access permission, and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 22

Applicant Name	Fergus County Conservation District		
Project Name	Upper and Lower Carter Ponds Dam Repair		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	35,000	Central Montana Foundation
	$	25,000	DFWP Community Pond Grant
	$	25,000	DFWP Migratory Bird
	$	50,000	Ducks Unlimited, In-Kind
	$	119,535	NRCS Grant
	$	10,000	PPL Community Grant
	$	3,800	USFWS Bowdoin
	$	9,400	USFWS CMR
	$	10,000	USFWS Partners for Wildlife
Total Project Cost	$	387,735*	more than actual cost of project ($360,733)
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

This proposal is to rebuild the dams of 24-acre Upper Carter Pond and 28-acre Lower Carter Pond to current specifications. The dams are located about six miles north of Lewistown. Each dam will store about 140 acre-feet after project completion.

Work was last done on the dams in the 1980s. In July 2004, the upper dam had a slow failure due to pipe corrosion; it is now about eight feet below normal pool. Early in 2004, the trickle tube on the lower dam collapsed, but the dam did not fail. The Montana Department of Natural Resources and Conservation (DNRC) recommended repair or breach of both dams.

The project is a cooperative effort between a private landowner; local, state, and federal entities; and Ducks Unlimited (DU) to re-establish a fishery, waterfowl habitat, and recreation area at Upper and Lower Carter ponds. Each pond has a Montana Department of Fish, Wildlife & Parks (DFWP) fishing access site. The dams and most of the shoreline are privately owned, but a walk-in public easement surrounds both reservoirs. The upper pond site has been developed with a latrine, gravel boat launch, and picnic tables. The lower site is not developed. Fishing pressure is substantial with about 1,600 angler-days each year. A rural fire hydrant that serves 200 to 300 people is located at Upper Carter Pond. It is currently not functioning due to low water.

The conservation district is seeking grant assistance of $100,000 to match other funds being raised for the $360,133 dam repair project. This project will ensure continued operation for fisheries, waterfowl habitat, recreation, storm water retention, and stock watering. The project should lead to establishment of a healthy riparian area surrounding the ponds.

Technical Assessment

Project Background

This project restores two multiple-use ponds slowly failing from corrosion of the spillway conduits. The proposed plan will rehabilitate the dams creating the ponds to maintain the historic agricultural, recreational, and wildlife habitat benefits of the ponds.

The Carter Ponds were originally constructed around 1938 as privately owned ponds to provide water for livestock and irrigation. DFWP manages fishing access sites at the ponds. The ponds provide wildlife and fishery habitat, recreation benefits, water for livestock and irrigation, and hydrants for fire suppression.

DNRC has performed a hazard classification for both dams and determined that they are not high hazard and consequently are not regulated to the high hazard standard. However, the serious deterioration of the dams has led DNRC to declare that the dams are unsafe due to the poor condition of the principal spillways. DNRC has recommended that the dams should be repaired or removed.

DNRC performed an evaluation of potential repairs in 2001 at the request of DFWP. This evaluation identified severe wave erosion of the embankment, inoperable low level outlets, failing principal spillways and overly steep downstream slopes as deficiencies that should be corrected. DU has subsequently developed conceptual plans and cost estimates to address these deficiencies. The DU plans are utilized as the basis for this grant application.

Technical Approach

The proposed project will consist of removal of failing principal spillways and replacement with new drop inlet spillways that will also incorporate low-level outlet capabilities. The surface of the embankment will be stripped to remove unsuitable materials and new earth fill will be placed over the embankments to provide stable slopes with an adequate crest elevation and top width. Riprap protection will be added to the upstream faces and new toe drains will be installed to collect and control seepage. This plan will address the deficiencies identified by DNRC.

The proposed alternative was selected based on maintaining the historic benefits, long-term reliability, and cost. Other alternatives considered included removal of both dams, partial breach of both dams, and repair of only one of the dams. The proposed alternative was selected as providing significantly more benefits, making it the most cost-effective alternative.

Project implementation will consist of the following tasks and schedule:

- Obtain funding, present to July 2007;
- Prepare final design and construction documents, fall 2006;
- Reconstruct Upper Carter Pond, July-November 2007; and
- Reconstruct Lower Carter Pond, May-December 2008.

Project Management

Central Montana RC&D will provide contract administration to the Fergus County Conservation District. DU will provide most of the professional and technical assistance and construction administration as an in-kind contribution. The project will be completed with a traditional design-bid-build sequence. A single prime construction contractor will be selected through a competitive bidding process. The project budget allows for funding to support the administrative, professional, and technical aspects of the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$31,121	**$31,121**
Professional & Technical	$0	$0	$66,328	**$66,328**
Construction	$100,000	$0	$162,684	**$262,684**
Total	**$100,000**	**$0**	**$260,133**	**$360,133**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate.

The applicant has applied for more grant funds than the actual cost of the project. They have applied for $387,735 of grant funding while the project will only cost $360,133. If awarded the RRGL grant, it is recommended that the project's match funding be spent first.

The project utilizes many sources of grant funding. Most of the matching funds have been secured. Other sources of funding include DU, Natural Resources and Conservation Service, DFWP, and U.S. Fish and Wildlife Service. The private landowner is also donating approximately 12 acres of public walk-in access corridor and pursuing funding for off-site water and/or water gaps and reservoir fencing to reduce livestock impacts to riparian habitat.

Benefit Assessment

The primary benefits to renewable resources are resource preservation and restoration of reservoir storage and habitat lost due to deterioration of the dams. This project provides measurable benefits in restoration of 140 acre-feet of storage, fishery restoration, and habitat restoration/enhancement.

In addition, secondary benefits from the proposed project include resource conservation and management. The proposed project provides measurable long-term future renewable resource benefits for multiple uses and the sponsor has demonstrated public support of the project.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The beneficial results are primarily related to restoring the integrity of the project. Short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 23

Applicant Name	Brady County Water and Sewer District		
Project Name	Brady Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	500,000	CDBG Grant
	$	20,000	CDBG Planning Grant
	$	300,000	RD Grant
	$	277,616	RD Loan
	$	1,260,384	STAG Grant
	$	750,000	TSEP Grant
Total Project Cost	$	3,208,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

This project is a public facilities project involving improvements to the wastewater treatment and collection systems for the community of Brady. The Montana Department of Environmental Quality (DEQ) has stated that the treatment system is out of compliance and is being referred to the Enforcement Division of DEQ.

The proposed project will solve several serious problems:

- The treatment system will be reconstructed to allow it to operate as per state requirements for a facultative lagoon, thus reducing the discharge of partially or untreated effluent;
- Sludge will be removed; and
- The badly leaking collection system will be replaced.

The proposed improvements to the treatment system will reduce damage to plant and animal species as well as the environment from the discharge of inadequately treated wastewater to a coulee north of the lagoon. The proposed improvements include crop irrigation of the treated effluent. Sludge must be removed from the lagoons and applied to the land to meet the U.S. Environmental Protection Agency (EPA) biosolids disposal permit and the Code of Federal Regulations (CFR) Part 503 requirements. The land application of the sludge, as well as irrigation of the treated effluent on agricultural land, provides a beneficial use by providing nutrients and water for crop production. The new collection system is needed to reduce the leakage of raw sewage to the groundwater system and prevent the infiltration of groundwater into the collection system.

Technical Assessment

Project Background

The Brady wastewater treatment and collection system currently serves a population of approximately 145 residents. The treatment system is currently a three-celled facultative lagoon with surface water discharge to the South Pondera Coulee where it evaporates and/or percolates into the ground.

The existing treatment system fails to meet DEQ 2 standards for a facultative lagoon with stream discharge. DEQ performed an inspection of the treatment facility in 2004 and noted several deficiencies, including:

- The lagoon was installed without a liner and is leaking;
- The discharge structure is leaking effluent to land that is open to the public;
- Numerous permit violation letters have been issued by DEQ and the issue is moving to the DEQ Enforcement Division;
- The influent pipe to Cell 1 is very near the discharge structure causing short and inadequate treatment before discharge;
- Sludge has never been removed from the lagoons. The sludge accumulation is drastically reducing the detention time;
- The collection system has leaking joints; and
- There have been several incidences of raw sewage backups.

Technical Approach

The PER evaluates the wastewater treatment and collection systems for the community to determine immediate and long-term needs for the 20-year planning period of 2006 to 2026. The DEQ has stated that the treatment system is out of compliance and is currently being referred to the Enforcement Division. Several serious problems to be solved with the proposed project include: reconstructing the treatment system to allow it to operate as per state requirements for a facultative lagoon, thus reducing the discharge of partially or untreated effluent; removing sludge; and replacing the badly leaking collection system.

Specific tasks to be accomplished:

- Reconfigure the existing treatment system to consist of two primary ponds and one secondary/storage pond with irrigation of the treated effluent meeting DEQ requirements for a facultative system;
- Remove the existing sludge from the pond; and
- Replace the entire collection system.

The application proposes the use of gated irrigation pipe for application of the treated effluent to agricultural lands. This method of irrigation has never been approved by DEQ to date, so alternative methods of irrigation may need to be considered. It is proposed that the recommended plan be constructed between July 2007 and December 2007.

Project Management

Management of the proposed wastewater treatment system improvements will be accomplished by the Brady County Water and Sewer District (BCWSD) staff. The Pondera County clerk and recorder will be the grant administrator, and a contracted consulting engineer will complete construction management and inspection during construction.

Monthly progress reports will be produced, and weekly construction meetings will be conducted. A public hearing was conducted on April 10, 2006, and the project was discussed at the BCWSD board meeting in December 2003. An implementation plan was provided showing how the project will be completed by December 2007.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$63,654	$0	$118,863	**$182,517**
Professional & Technical	$0	$0	$421,824	**$421,824**
Construction	$36,346	$0	$2,567,313	**$2,603,659**
Total	**$100,000**	**$0**	**$3,108,000**	**$3,208,000**

The estimated budget appears complete and reasonable. The applicant provided a breakdown of costs for each of the alternatives including operation and maintenance requirements. The applicant is proposing a workable budget and funding sources to finance the project. Approximately 145 users will be impacted by the improvements at the wastewater treatment system. It is estimated that sewer rates will increase from approximately $4/month to $30/month. In addition to the RRGL grant, the applicant has applied for funding from TSEP, CDBG, Rural Development grant and loan, and a STAG grant. This project was not included in the preliminary list of projects considered for funding from the STAG program.

Benefit Assessment

The proposed wastewater treatment system improvements will include new collection lines, lagoon liners, and irrigation of treated effluent. Preservation of groundwater sources will be accomplished with the elimination of leaks from the collection mains and lagoons. Surface water quality will also be preserved through using the treated effluent as irrigation water rather than discharging it to the South Pondera Coulee. The environment for aquatic species downstream will be enhanced. It also serves to preserve the surrounding farm land and reduce agriculture chemical use.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The proposed improvements will reduce damage to plant and animal species as well as the environment from the discharge of inadequately treated wastewater to a coulee north of the lagoon.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 24

Applicant Name	Beaverhead Conservation District (BCD)		
Project Name	Big Hole Ditch Improvement Project		
Amount Requested	$	99,355	Grant
Other Funding Sources	$	1,250	Big Hole Watershed Committee
	$	18,353	Bureau of Reclamation (Water 2025 Program) or DNRC (223 Conservation District Program)
	$	26,000	Landowner
Total Project Cost	$	144,958	
Amount Recommended	$	99,355	Grant

Project Abstract (Prepared and submitted by applicant)

The purpose of this project is to upgrade Big Hole Ditch and associated irrigation infrastructure. The ditch diverts water from the Big Hole River, an important fishery and a natural and recreational resource in the region. Rock Creek is also intercepted by the ditch.

Big Hole Ditch was constructed in 1918. In the 1960s, Interstate 15 was constructed over and along this ditch. Relocating the ditch is not feasible since it must pass through a 378-foot-long, 42-inch concrete culvert beneath the interstate. In addition, the point of diversion for this ditch has been stable for many decades. Therefore, any changes to that site are not recommended.

Major facilities at Big Hole Ditch include flow control headgates, a flow measurement flume, and excess flow spillways. The control structures are wood timber construction and are approximately 50 years old. Commensurate with their age, the structures are deteriorating to the point where failure may occur if the system is stressed during high water.

Other operational issues with the ditch include:

- Difficulty in controlling fish migration to and from the ditch;
- Lack of control of Rock Creek water;
- Inability to completely dry the ditch for maintenance; and
- Steep embankment near the Big Hole River susceptible to failure.

This project proposes to remedy current operational issues by replacing aging infrastructure and by performing other modifications which will reduce failure risk. When completed, the improvements will allow more effective ditch maintenance and operation.

Additional benefits of completion include:

- Fish passage to the Big Hole River when the ditch is drained;
- Protection of the Big Hole River from embankment failure and resultant sediment load to the river; and
- Enhancement of public safety for recreational users on the Big Hole River.

Technical Assessment

Project Background

The Big Hole Ditch diverts water from the Big Hole River for irrigation near Glen. The ditch flows south parallel to the Big Hole River and Interstate 15 before passing under the interstate and intercepting the flow from Rock Creek. Because the headgate structures and emergency flow bypass controls now more than 50 years old and approaching the end of their service life, the ditch is susceptible to headgate failure and breaching during high flow events.

The ditch infrastructure should be replaced to protect the outstanding resource values associated with the Big Hole River. The improvements will protect against ditch embankment failure, enhance the Big Hole fishery by allowing trout to pass from the ditch to the river, reduce sediment load to the river, and permit more efficient ditch maintenance and operation. No construction work is planned in the Big Hole River itself and no modifications will be made to existing river channels.

Technical Approach

The project is a collaborative effort between the BCD and the Big Hole Watershed Committee (BHWC).

The goals of the project include:

- Protecting the Big Hole River and its users from ditch washout;
- Allowing fish passage back to the Big Hole River after the irrigation season; and
- Improving the operator's ability to maintain the ditch and manage irrigation water.

Interstate 15 limits the viable alternatives available for solving problems with the ditch. The preferred alternative–installing a weir, two headgates, and two ladder-type fish passage structures–was selected as the best way of protecting the ditch from failure, improving ditch hydraulics, and allowing the trout to return to the river. However, an alternative of pumping water from the river and utilizing pivots and sprinklers for irrigation could have been evaluated to put the costs of the preferred alternative into perspective. There are no diagrams or drawings of any alternatives (other than the preferred alternative) and no discussion of permits associated with the alternatives.

Ditch improvements are scheduled for completion during approximately four weeks in fall 2007. The project implementation schedule appears feasible but does not include time lines for creating a request for proposal (RFP) and hiring a consulting engineering firm.

Specific tasks to be accomplished:

- Install a V-notched weir structure at the headgate spillway consisting of sheet metal buttressed by large riprap;
- Replace two existing wood-timber headgates with concrete foundations and steel headgates;
- Install a 42-inch culvert in the reach extending from the I-15 culvert to a point 1,200 feet upstream; and
- Replace existing headgates with structures (ladders) that allow fish passage through manipulation of a series of removable steel check plates within the channel.

Project Management

The project appears to have an adequate management team. The BHWC coordinator and the BHWC Technical Advisory Committee (TAC) will develop the RFP and the BHWC coordinator will serve as contract manager. The BHWC and BCD have successfully managed other projects in the Big Hole drainage. Project funding will be administered by the BCD. Administrative costs, which total 5% of the proposed Renewable Resource Grant, appear reasonable.

Opportunities for public involvement include BCD and BHWC meetings, both of which are open to the public. Minutes from BHWC meetings are provided to a mailing list of 250. The project will be described in a newsletter that goes to more than 1,200 as well as on the BHWC website, and will probably be part of a public watershed tour. The BHWC coordinator, with assistance of the TAC, will develop an appropriate scope of work for the consultant. A preconstruction meeting with the contractor will be scheduled to go over terms, guidelines, and responsibilities. The BHWC coordinator will communicate regularly with the consultant's project manager and inspect the site.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$5,000	$0	$0	**$5,000**
Professional & Technical	$13,562	$0	$1,434	**$14,996**
Construction	$80,793	$0	$44,169	**$124,962**
Total	**$99,355**	**$0**	**$45,603**	**$144,958**

The proposed budget appears realistic and feasible, although some discrepancies occurred between budget figures in the project summary and the financial feasibility narrative tables. These discrepancies were clarified in a telephone conversation with the grant writer. Although the anticipated project costs exceed identified funding sources, the BHWC and BCD are applying for additional monies through the Montana Conservation District 223 Program and the Bureau of Reclamation Water 2025 Fund (approximately $18,500 needed to complete the project). If these grants are unavailable, the cooperating landowner is prepared to increase his in-kind donation of materials, which would allow one or both of the unfunded portions of the project to be completed.

The construction contingency cost of 10% appears adequate for a project of this magnitude. The identified cash match sources of $1,250 from the BHWC and $26,000 from the landowner are supported by letters of commitment.

Benefit Assessment

The project will conserve water in the Big Hole River by improving management efficiency of the Big Hole Ditch, primarily through installation of more accurate and appropriate flow-measuring devices. It will also preserve existing water quality in the Big Hole River by preventing failure of the ditch embankment, which would put significant sediment into the river.

The project will improve the ability of the Montana Department of Fish, Wildlife & Parks (DFWP) to manage wild trout in the Big Hole River by providing fish ladders that allow trout to return to the river from the ditch system after irrigation season. This has potential benefits for the renewable wild trout resource that extend beyond the Big Hole River, since the project can serve as a model for similar projects around the state.

Recreational fishing in the Big Hole River is likely to be enhanced if more trout are returned to the river and if trout habitat is improved in the river due to efficiencies in the ditch system.

Environmental Evaluation

Environmental impacts associated with the project were evaluated and no apparent adverse long-term impacts will result. There may be some short-term turbidity increases due to construction activities, although these will likely be mitigated.

Funding Recommendation

The DNRC recommends grant funding of $99,355 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 25

Applicant Name	Superior, Town of		
Project Name	Superior Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	297,532	DW SRF Loan
	$	238,500	Local Cash Reserves
	$	600,000	TSEP Grant
Total Project Cost	$	1,236,032	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The water system that serves Superior residents was privately owned by the Mountain Water Company in Missoula, but was purchased by the town in 2000 and is now operated as a government-owned utility. The water supply is derived from three wells in the community which provide adequate and good-quality water. A 400,000-gallon steel tank provides storage, generally adequate for domestic use but limited in volume for fire protection. The distribution system is made up of about 55,500 lineal feet of a variety of types of water mains ranging in size from one inch to 12 inches in diameter. More than 45% of the entire distribution system is undersized and is constructed of steel or cast iron pipe four inches and less in diameter. Many of these smaller diameter lines are estimated to be 50 to 70 years old. In addition, about 26% of the "water mains" in the system are one or two inches in diameter. Unaccounted for water losses total about 27% in the system; much of the leakage originates from the old mains and services. Water modeling indicates that much of the distribution system cannot provide adequate fire protection for larger businesses and institutions throughout the community. The proposed project will replace or upgrade almost 10% of the total lineal footage of the water system. The project will conserve water resources through reduction in leakage and reduce energy utilized to pump water through small-diameter and corroded water lines. A large percentage of the new mains are in business areas constrained by lack of adequate water. New business growth can be anticipated with additional water resources. The improvements will significantly enhance the ability of the town to provide adequate supplies of water.

Technical Assessment

Project Background

The original primary water supply was a collection gallery in groundwater adjacent to Flat Creek. This supply contained excessive amounts of antimony, thought to have originated from historical mining activity in the area. The collection gallery source is available to the community only for emergencies. The town's water supply is now derived from three groundwater wells, which provide a total of 1,000 gallons per minute of good-quality water. Each well is chlorinated at the well head with sodium hypochlorite.

The primary deficiency with the water system is the widespread use of old and undersized water mains. These old mains are suspected of contributing heavily to the system's 27% water loss estimate. In addition, the undersized mains are not capable of carrying adequate fire flows to several areas of town. If additional water storage or water supply is needed to fight large fires in town, improvements to the distribution system are necessary before additional storage or supply will benefit the community.

Distribution system alternatives considered included replacing all undersized water mains in the system. Due to cost considerations, the applicant is proposing to replace 6,850 feet of piping in Phase 1, and the remaining piping in future phases. Water supply alternatives evaluated included reconstruction of two of the existing three wells, upgrades to the telemetry system, drilling of a new well for additional fire protection, and the no-action alternative. The Preliminary Engineering Report (PER) also evaluated construction of a new 250,000-gallon storage tank for additional fire protection.

Technical Approach

The goals of the project are to replace some of the older, likely leaking, water mains and to improve fire flows in several locations of the town's system. The PER identified nearly $4.6 million of total recommended improvements. Due to cost considerations and user rate impacts, the proposed Phase 1 project includes $1.24 million of improvements, all of which is new/replacement distribution system piping. The PER acknowledges the need for additional water storage and/or supply to improve fire-fighting capabilities, but the hydraulic restrictions in the distribution system should be corrected before considering additional storage or supply. As such, the storage/supply improvements will be implemented in a future phase.

The preferred alternative includes installation of approximately 6,850 feet of new water distribution piping in several locations around town. The majority of the new piping will replace existing undersized mains, with the balance extensions of existing mains. All of the new piping is within the municipal limits of the Superior water system. The selection of the preferred alternative was based on several criteria including present worth, cost, O&M complexity, environmental impacts, public health and safety issues, operational flexibility, and ease of implementation/public support.

All alternatives considered included an evaluation of environmental impacts, with no potential long-term negative impacts identified. The project is scheduled to start in the second quarter of FY 2007 and be complete near the end of FY 2008.

Specific tasks to be accomplished:

- Install new eight-inch water main along Old Highway 10 and six-inch water main on North River Street;
- Extend existing 12-inch water main south of Interstate Highway 90 to the south of the railroad tracks;
- Extend existing 12-inch water main at hospital past extended care facility;
- Install new eight-inch water main on Riverside Avenue between River Street and 3rd Street; and
- Install new eight-inch water main on west end of Main Avenue.

Project Management

The project management team includes the town council, mayor, town clerk, public works superintendent, a project engineer/grant administrator, legal counsel, and bond counsel. The town's primary contact is the mayor. The town staff has been involved in numerous public facilities projects and they understand the requirements of the funding agencies. The town clerk will be primarily responsible for project finance activities and record-keeping. The public works superintendent will be responsible for technical oversight of the project and working with the engineer to address any potential issues. Town staff will work directly with the engineer and funding and regulatory agencies to ensure that the project is properly managed and that all technical, financial, and regulatory requirements are addressed. The proposed project management team is adequate to successfully manage the project from planning through completion and close-out.

Planning has been completed and the project stands ready to go to construction. Depending on the project funding, construction will begin as soon as April 2008. Throughout the planning phase of the project, the town council has had numerous open public meetings where the water system has been discussed. The town also sponsored a public hearing on April 10, 2006, to discuss the PER and the proposed project. Future activities would include use of a local paper to provide information on the project, use of other local media to notify citizens of project status and potential construction disturbances, door hangers, and quarterly newsletters. All council meetings are advertised and open to the public. The project management plan adequately addresses public involvement during the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$45,000	**$45,000**
Professional /Technical	$0	$0	$191,360	**$191,360**
Construction	$100,000	$0	$899,672	**$999,672**
Total	**$100,000**	**$0**	**$1,136,032**	**$1,236,032**

The budget form in the application is complete and reflects a total project cost of $1,236,032. The proposed funding strategy appears sound and realistic and includes an RRGL grant ($100,000), TSEP grant ($600,000), DW SRF loan ($297,532), and local cash reserves ($238,500). The project cost includes installation of 6,850 feet of water distribution piping. Detailed cost estimates for the selected alternative were provided in the PER to support the project cost. The cost estimates appear adequate for the proposed project. Costs for bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. The estimated costs for each line item in the budget form appear to be accurate for the scope of the proposed project.

The status of the RRGL and TSEP grants will not be known until the ranking and review process is complete and legislative approval is obtained in 2007. The current average residential monthly water rate is $35. The projected rate following completion of the proposed project is $39.47. All users would be assessed the applicable rate increase. The applicant states that if the town is not successful in obtaining either the RRGL grant or the TSEP grant, the budget would require further consideration with possible deletion of project components. Alternatively, the town would consider future application to the CDBG program. The application discusses realistic funding cycles and cash flow estimates.

Benefit Assessment

The primary benefits to renewable resources are resource conservation, management, and preservation. The proposed project provides resource benefits by installing 6,850 feet of new water main to replace leaky piping and to improve fire flows. The PER estimates that 27% of the water pumped to town is lost as leakage, with much of the loss occurring in the old mains. Replacement of the mains will not only reduce leakage, but will also reduce chemical usage and power usage for the pumps. Increasing the size of the mains will also allow more efficient pumping. In addition to direct water loss, leaky piping can also increase the potential for contaminants to enter the water system. Replacement of the piping also minimizes the potential for treated water (i.e., chlorine) to enter groundwater resources and aquifers, thereby preserving the quality of those waters. Several of the new water mains will significantly improve fire flows to some of the larger structures in town.

Environmental Evaluation

The applicant adequately addresses the environmental impacts associated with its proposed Phase 1 water system improvements project with no long-term negative impacts noted. An environmental checklist was included with the application and appears complete. Short-term impacts associated with construction have been identified in the PER and environmental checklist. They include noise, traffic, dust, energy consumption, and storm water runoff. The PER indicates that measures will be taken during the construction of the project to mitigate these impacts through requirements in the project specifications. No land acquisition is required.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 26

Applicant Name	Sunny Meadows Missoula County Water and Sewer District		
Project Name	Sunny Meadows Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	64,500	Applicant, Cash
	$	180,000	DW SRF
	$	325,000	TSEP Grant
Total Project Cost	$	669,500	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Sunny Meadows Missoula County Water and Sewer District was formed in 2006 and operates a community water supply system. The district's usable water storage capacity of 23,000 gallons is grossly inadequate to meet the community's needs and results in the district running out of water regularly during the summer. The district's booster station is severely substandard and homes served by the booster station report running out of water daily during high usage periods. Residents have reported hearing air sucking into home water fixtures when opened and hearing water backflowing through the booster pump and into the water storage tank which supplies water to the remainder of the district. Contamination of the drinking water due to backflow is a severe threat to public health and safety and is recognized by the Environmental Protection Agency (EPA) as one of the most significant threats to public water supplies in the United States. The original residential water meters within the district are old, inaccurate, and they leak.

A new 125,000-gallon steel water storage tank will be constructed. This construction will increase utilization of water by supplying all system water demands, including fire protection. Existing antiquated meters will be replaced, resulting in a contribution to water conservation. A telemetry system, allowing remote operation of the water system, will be installed. Remote operation will maximize pumping and power efficiency and decrease operation costs for the district. The project will also replace existing well pumps and install new valve house piping, including water meter, pump control valve, sampling taps, and required piping and valves to reduce hydraulic restrictions. The project will solve all serious health and safety problems and enhance the common well-being of Montanans through the conservation, management, development, and preservation of the district's public water system.

Technical Assessment

Project Background

Sunny Meadows Missoula County Water and Sewer District was formed in 2006 and operates the public water system for a subdivision located five miles east of Missoula. Constructed in 1979, the system provides water to 53 residential hookups.

The system derives its water from two wells drilled in the late 1970s, before construction of the subdivision. The wells supply water to a distribution system that is in good condition and a 40,000-gallon concrete storage reservoir. A small boost pump provides pressure for the delivery of water to four residences located above the main subdivision.

The wells and existing pumps do not have the capacity to meet the demand requirements of the Department of Environmental Quality's (DEQ) Circular DEQ 1. Additionally, the storage capacity of the existing storage reservoir is approximately 100,000 gallons short of meeting the requirements of Circular DEQ 1, leaving the subdivision with a system that fails to meet fire flow requirements and is subject to low or even negative pressures and potential backflow during periods of high demand. Other features of the system, including valve house piping, 22 of 53 water meters, and the boost pump facility are in need of upgrades or replacement to meet regulatory and performance

criteria. The Preliminary Engineering Report (PER) discusses numerous options and alternatives for the various required upgrades and recommends improvements as discussed below.

Technical Approach

In order to upgrade its water system to provide the performance and levels of compliance required, Sunny Meadows Missoula County Water and Sewer District is proposing comprehensive system upgrades. Of primary concern are supply and storage inadequacies. To increase its supply of groundwater, the district proposes to replace the pumps in the two existing wells with larger, more energy-efficient pumps, instrumentation, and controls. The existing 40,000-gallon storage reservoir will be abandoned as part of the project and replaced with a new 125,000-gallon above-grade steel tank. Piping and valves will be replaced, and a new and reliable boost pump facility will be constructed to provide reliable water quantities and pressures to all areas of the subdivision. Thirty-one homeowners within the subdivision have recently replaced their unreliable water meters. This project will replace the remaining 22, thus providing new and accurate water meters throughout the subdivision and promoting water conservation.

Costs and environmental impacts were both considered in the selection of the preferred alternatives. Other than short-term impacts during construction, no adverse environmental impacts have been identified.

If successful in obtaining project funding, the district proposes to have the project designed late in 2007 and early in 2008. The project would bid in late winter or early spring of 2008, and would be complete by fall 2008.

Specific tasks to be accomplished:

- Replace 22 existing dysfunctional water meters;
- Replace pumps in two wells with larger energy-efficient pumps;
- Replace valve house piping and valves, and install water meters to measure flows from both wells;
- Construct a new boost pump facility to provide adequate pressure throughout the system; and
- Replace the existing 40,000-gallon concrete water storage reservoir with a new, above-grade, 125,000-gallon steel tank.

Project Management

The Sunny Meadows Missoula County Water and Sewer District will have ultimate authority and responsibility for the expenditure of grant funds as approved by the Legislature as well as public notification and involvement. The engineer will provide oversight of field and construction activities and will be responsible for recommending progress payments to the construction contractor. Project coordination, reporting, and grant management will be performed by a grant administrator to be selected during the design phase of the project in 2007.

The district has selected an engineer for the project; design will commence as soon as funding becomes available. The public has been kept well-informed of project developments; the funding package for the project is reasonable, and it is expected that the project will be in a position to begin as scheduled.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$43,000	**$43,000**
Professional & Technical	$0	$0	$126,500	**$126,500**
Construction	$100,000	$0	$400,000	**$500,000**
Total	**$100,000**	**$0**	**$569,500**	**$669,500**

Based on the cost estimate provided in the application, the budget is sufficient to fund the proposed project. Unit costs used to develop the estimated cost of construction are reasonable, and a 9% construction contingency is included in the cost estimate. Justifications for the proposed actions as the best alternative for upgrading the district's 27-year old system are provided in the PER.

Residential water rates for the 53 homeowners within the district will average about $60 per month. There is no centralized wastewater system within the subdivision. This water rate is over twice the average paid in Montana for an entity with a median household income similar to that for Sunny Meadows, also referred to as the "target rate."

Benefit Assessment

This project will provide a multitude of renewable resource benefits including conservation, management, and development. Of these, resource management is the primary benefit. Through a combination of household meters, well head meters, energy-efficient pumps, state-of-the-art controls and telemetry, and additional storage, the district will be able to manage its limited supply of groundwater in the most efficient manner possible. Conservation will be encouraged with the installation and use of meters as the basis for monthly billing, and the installation of new pumps will enable the district to further develop its groundwater resource within the confines of its existing water rights. The use of water meters is expected to reduce consumption by 40% to an average of 153 gallons per capita per day. This figure is 73% of the average in Montana for metered communities, and 96% of the national average. The project is well-accepted by property owners within the district as well as DEQ.

Environmental Evaluation

Each of the items included as part of this project will entail minor adverse environmental impacts during construction. However, there will be no long-term adverse impacts. Long-term benefits will include efficient system management, water conservation, and the supply of adequate water with adequate pressures at all times of the day throughout the year.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 27

Applicant Name	Tri County Water and Sewer District		
Project Name	Tri County Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	213,500	Applicant
	$	313,500	TSEP Grant
Total Project Cost	$	627,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Tri County Water and Sewer District is located in portions of Teton, Cascade, and Chouteau counties. The district is a rural service area of approximately 95,000 acres and serves approximately 450 people. The district's water system was constructed in 1982 and consists of 218 miles of water mains, a single supply source, and a storage tank.

A second water supply is needed to provide redundancy. Redundancy will provide protection against contamination of the only source and also meet system demands should one source be out of service. An improved source is also needed to ensure the district is not left without water during droughts.

The existing distribution system is undersized for peak demands and operating pressures do not meet minimum required pressures for all portions of the distribution system. As a result, portions of the system run out of water completely during peak demand periods.

The proposed project will construct an additional infiltration gallery, wet well, and pump house to provide the district with additional supply capacity and also provide a redundant water supply. In addition, approximately 20,000 lineal feet of undersized distribution system piping will be replaced and a new booster pump station added.

Replacement of a portion of the distribution system will allow the system to operate more efficiently, resulting in energy conservation. The piping improvements will also allow the district to provide water to all users during peak demand periods, which will aid in its management of the resource. These improvements will also preserve the renewable resource benefits that the water system currently provides. Construction of a new water supply will develop and expand the utilization of a natural resource.

The project will solve serious health and safety problems and enhance the common well-being of Montanans through the conservation, management, development, and preservation of water, a renewable resource.

Technical Assessment

Project Background

The water system owned by the Tri County Water and Sewer District is a rural water system constructed in 1982 with over 218 miles of water main ranging from 1.5 inches to six-inches in diameter. Water supply is provided by a single groundwater spring source with the water pumped into the distribution system and to a steel storage tank. The engineering analysis indicated that improvements to the distribution system are needed to increase the amount of water that can be pumped to users as well as increase operating pressures. A second water supply is proposed to add redundancy to the system to improve overall capacity of the water system and allow for better operational reliability. Meters are not used on the system but water supply to each service is restricted with orifices and the average water consumption per user is regulated and reasonable.

Technical Approach

The applicant considered a comprehensive solution to the problems identified in the PER, which resulted in a phased project scope. The second phase of the project is to occur in the future as the financial resources of the district allow. The PER considered several alternatives for a new water supply including connection to the proposed North Central Montana Regional Water System Project. The chosen option, a new groundwater supply, was clearly the most cost-effective solution. Hydraulic modeling of the water system was used to determine which pipes in the existing pipe network are needed to increase water flow and pressure. A new booster station was proposed to serve a portion of the users located at a higher elevation to help increase operating pressures. The applicant has suggested a feasible schedule for design and construction of the project.

Specific tasks to be accomplished:

- Construct a new infiltration gallery, wet well, and pump house;
- Install 20,000 linear feet of two-inch HDPE water main; and
- Install a new booster pump station.

Project Management

The proposed project management plan indicates that local and professional staff will be used to administer and manage the proposed project from design through completion and close-out. Public involvement was discussed and plans for keeping the public involved in future stages of the project development process were included. The schedule included in the application shows appropriate tasks leading to construction which will occur in summer 2008. The budgeted amount for professional services for project administration appears adequate.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$25,000	**$25,000**
Professional & Technical	$0	$0	$90,400	**$90,400**
Construction	$100,000	$0	$411,600	**$511,600**
Total	**$100,000**	**$0**	**$527,000**	**$627,000**

This budget appears sufficient, with cost estimates used to develop the budget sufficiently detailed. The applicant provided a good breakdown of unit construction costs. The proposed funding plan is feasible but is reliant on success in obtaining grant assistance from two different competitive grant programs. Local cash reserves are available for a portion of the project budget and could be used to cover shortfalls in grant assistance.

Benefit Assessment

Distribution system improvements will allow for more efficient pumping and energy savings. The redundant water supply will promote better management of water resources allowing for better system reliability and improved maintenance. The project will also allow for development of water resources as required for domestic, commercial, and institutional use in the community. The project will not provide or enhance natural resource-based recreation. No jobs will come directly as a result of the project. A detailed program for public support was documented in the application including meeting minutes, attendance lists, etc. Letters of support from the public and local agencies were also included in the application.

Environmental Evaluation

Most of the possible environmental impacts associated with this project were evaluated and several agencies with environmental authority contacted for input. The majority of the work on the distribution system is within previously disturbed areas, which limits the potential for adverse environmental impacts. Wetlands and sensitive biological species are found in the general project area which will require the mitigation of potential adverse impacts if affected by project construction. The alternative selected appears to create the least adverse impacts of those considered. Short-term, construction-related impacts will be controlled through proper construction observation and control.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 28

Applicant Name	Philipsburg, Town of		
Project Name	Philipsburg Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	47,764	Applicant
	$	475,557	Applicant, Local Loan
Total Project Cost	$	623,321	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The sewer system consists of a gravity collection system; a two-cell, 12.4-acre facultative lagoon system for treatment; and a gravity outfall main between the collection system and the lagoons. The entire collection system functions by gravity. The lagoons discharge to Flint Creek, a tributary of the Clark Fork River, where new stringent nutrient standard and load limits are proposed.

The town of Philipsburg currently serves a total of 550 sewer service connections, approximately 465 of which are residential. The total population served by the municipal system is estimated to be 941.

Philipsburg's need for an estimated $6.6 million in wastewater facility improvements is driven by a number of factors including:

- Proposed Total Maximum Daily Load (TMDL) limits and in-stream standards on Flint Creek for nitrogen and phosphorous so stringent that tertiary wastewater treatment will be required, significantly increasing the cost to treat the town's wastewater;
- The addition of more restrictive ammonia limits unattainable with lagoon-based treatment that could result in non-renewal of the system's NPDES permit;
- Existing lagoon deficiencies, including accumulated biosolids and pre-1990 storm water sediments, and inadequate hydraulic detention time (capacity);
- Excessive gallons per capita per day (gpcd) water consumption and wastewater generation (244 gpcd), unduly diluting sewage flows, and potentially inflating the size and cost of new wastewater treatment works;
- Seasonal groundwater infiltration into collection system outfall piping;
- Anticipated increased demands on the system due to escalating real estate sales, population growth, and housing development within and around the community; and
- Remedy of the identified system deficiencies is of high priority for the town to protect residents' safety and welfare, and to eliminate public health and environmental threats in the area.

The goal is to achieve wastewater facility improvements as remedy for the system's deficiencies. However, the projected costs for the identified improvements far exceed the community's current financial abilities. Therefore, the town needs to determine the concise magnitude of improvements necessary; it is working closely with the Montana Department of Environmental Quality (DEQ) in a process of setting the in-stream water quality standards and subsequent TMDL limits for Flint Creek. The town will first verify the current wastewater gpcd flow with the installation of water meters and then prepare a rate study, for an anticipated cost of $575,557. These actions will provide a means to conserve water usage, thereby reducing wastewater flows. Reduced wastewater flows will result in reduced operation and maintenance (O&M) cost at the treatment plant and also ensure that the overall plant improvements project not be overdesigned, thereby minimizing the overall financial burden to the community. The project will benefit households within Philipsburg equally as all residents have access to the municipal facility.

Technical Assessment

Project Background

The town of Philipsburg, county seat of Granite County, is served by water and wastewater systems constructed approximately 100 years ago. The community's water system consists of an untreated surface water source, Fred Burr Lake; a transmission main that has been partially replaced since its construction around the turn of the last century; a buried concrete storage reservoir; and a distribution system that needs to be replaced due to inadequate size and deterioration. The wastewater system consists of an antiquated collection system of undersized piping, a 5,500-foot outfall line subject to groundwater infiltration, and a two-cell lagoon that discharges into Flint Creek, a valuable irrigation asset and fishery that is home to many fish species, including bull trout.

The wastewater collection system consists of undersized four-inch and six-inch mains that do not meet DEQ requirements; the outfall line between the collection system and the treatment facility is constructed of vitrified clay pipe and, as mentioned above, is subject to excessive groundwater infiltration. The treatment facility, two facultative

lagoon cells, are in immediate need of sludge removal and do not meet DEQ design standards or discharge permit requirements. Additionally, due to very restrictive future surface water discharge requirements, it is anticipated that facultative lagoons will be incapable of providing the level of treatment (nutrient removal) necessary to meet criteria for discharge into Flint Creek.

Although this project is for the installation of water meters, it is being proposed as Phase 1 of a three-phase wastewater system improvements project. The primary purpose of the project is to reduce the daily consumption of water and resulting wastewater system demands. Once this has taken place, it will be possible to accurately and efficiently size a replacement wastewater collection and treatment system for the community. The construction of a new treatment plant will comprise Phase 2 of a multi-phase wastewater treatment system improvements project to be completed within the next 10 years. Phase 3 will include replacement of the collection system and outfall line.

Technical Approach

To effectively manage its water supply and promote water conservation, the town of Philipsburg proposes to install water meters at each of the 550 service connections. A primary purpose of the project is to reduce the amount of wastewater requiring handling and treatment, thus reducing the size of the plant necessary to meet treatment requirements. Current water consumption is approximately 250 gallons per capita per day. It is estimated that this will be reduced by approximately 50%, resulting in a figure consistent with consumption for metered systems within Montana.

Philipsburg plans to implement Phase 1 of its multi-phased project, the installation of water meters, in fall 2007. Beginning in 2008, the method of billing will be changed from a flat fee to a consumption-based methodology.

Specific tasks to be accomplished:

- Prepare bid documents to furnish and install water meters; and
- Award a construction contract and install water meters at all service connections.

The Philipsburg wastewater treatment facility does not meet regulatory criteria. The community is evaluating alternatives for replacement of the system. Before a new system can be designed, it is imperative that efforts be made to conserve water and reduce the loads on the wastewater system to the lowest practical levels to facilitate the most efficient design. Installation of water meters and the change to a consumption-based billing system is a positive first step toward that goal.

Project Management

Philipsburg will have ultimate authority and responsibility for the expenditure of grant funds as approved by the Legislature as well as public notification and involvement. The engineer will provide oversight of field and construction activities and will be responsible for recommending progress payments to the construction contractor. Project coordination, reporting, and grant management will be performed by the town clerk.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$30,764	**$30,764**
Professional & Technical	$0	$0	$110,707	**$110,707**
Construction	$100,000	$0	$381,850	**$481,850**
Total	**$100,000**	**$0**	**$523,321**	**$623,321**

Based on the cost estimate provided in the application, the budget is sufficient to fund the proposed project. Unit costs used to develop the estimated cost of construction are reasonable, and a 10% construction contingency is included in the cost estimate. Justification for the proposed action as the best approach to reducing wastewater flows is provided in the application.

Residential water rates for the Philipsburg are currently $31.36 per month. Current sewer rates are $37.50 reflecting a July 1, 2006, rate increase. These combined rates are 46.3% above the average paid in Montana, also referred to as "target rates" based on median household incomes. Rates will not increase as a result of this project, the installation of water meters. However, the community is facing another $12 million in wastewater system improvement costs and will be seeking multiple sources of grant funding within the next few years.

Matching funds for this project are secure as evidenced by a letter of credit from the local bank. If awarded an RRGL grant, the project will be in a position to bid and construct in fall 2007.

Benefit Assessment

Although the installation of water meters usually results in direct water conservation benefits, the primary renewable resource benefit associated with this project is resource preservation. The proposed project is designed to reduce sewer flows and, consequently, the size of a required new wastewater treatment facility. The new treatment plant is required to provide the level of treatment necessary to protect and preserve the water quality of Flint Creek, an essential asset to the agricultural community in Granite County, and a valuable fishery that flows from Philipsburg north 27 miles to its confluence with the Clark Fork River near Drummond.

Secondary benefits include water conservation and resource management, as meters will allow the community to identify leaks and inefficient use of its limited supply of drinking water. An estimated 125,000 gallons of water will be conserved each day as the result of installing water meters and imposing a metered billing system. The project provides multiple benefits to the residents of Granite County and is well-supported by the general public, local businesses, Montana's congressional delegation, and DEQ.

Environmental Evaluation

The installation of water meters will entail minor construction, and minor impacts associated with installation of meter pits where necessary. However, there will be no long-term adverse impacts. Long-term benefits will include water conservation and late-summer maintenance of pool levels in Fred Burr Lake, a pristine mountain lake east of Philipsburg in the Flint Creek Range. As subsequent phases of the project are completed, the long-term impact will be the preservation or improvement of water quality in Flint Creek.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 29

Applicant Name	Fort Peck Tribes		
Project Name	Fort Peck 58 Main Check Structure Replacement for Water Management		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	4,500	Applicant, In-Kind
	$	84,375	BIA Cash
	$	4,500	Fort Peck Irrigation Project, In-Kind
	$	8,000	Great Northern Development Corporation, In-Kind
Total Project Cost	$	201,375	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Fort Peck Tribes and Fort Peck Water Users Association are working on improving the Fort Peck Irrigation Project (FPIP). The proposed project will address water conservation, water management, and farm land preservation in the area, downstream from the 58 Main Check Structure.

Because it is in immediate danger of failure, check structure 58 is not being used. The 58 Main Canal Spill Structure is being used as the check, leading to excessive amounts of spill water. Based on information provided by the Fort Peck Water Users and Bureau of Indian Affairs (BIA) ditch riders, approximately 3,000 acres depend on the main canal structure and facilities. Without a properly functioning 58 Main Check Structure, it is nearly impossible to divert water down adjacent laterals. In addition, continued use of the spill structure as a check structure will most likely lead to failure of the spill.

Four objectives are addressed by this improvement:

- Conservation of irrigation water;
- Increase of water supply for irrigation-classified tracts without suitable water supply;
- Supply of water for idle irrigation tracts; and
- Improved management of 58 Main Canal facilities.

The proposed project is an important part of the improvement of the Fort Peck Irrigation System. Better management and increased water supply will allow farmers to retain beneficial use of irrigated lands. This will generate income from farming which, in turn, has the potential to stimulate the area's economy

Technical Assessment

Project Background

The FPIP is located west of Wolf Point. Constructed in the early 1930s, the system is over 70 years old. Several components of the irrigation system need repair or replacement. The source of water is the Missouri River.

In April 2006, an investigation and subsequent engineering report identified a deteriorated check structure in the 58 Main Canal of the FPIP as one of the most critical problems. The 58 Main Check Structure is unusable due to settling, erosion under the structure, and concrete failure. Replacement of the structure is recommended. The other alternatives addressed in the application included work on additional areas of the irrigation system and repair of the check structure.

Technical Approach

The preferred alternative in the engineering report was replacing the 58 Main Check Structure and a canal spill structure and repairing the lateral canal. The sponsor chose to replace the check structure, but not the canal spill structure or repair the lateral canal. The sponsor stated that funding is not available to work on the other

components and that the check structure is the most critical component. Replacement of the check structure is the most cost-effective remedy to assure delivery of sufficient water to approximately 3,000 acres of irrigated crop land in the system. The current structure will be replaced with a new concrete structure employing slide gates rather than the current stop log bays. Project construction will take place in spring and fall 2008.

Specific tasks to be accomplished:

- Conduct onsite survey and gather data;
- Perform hydraulic modeling for design;
- Design the new 58 Main Check Structure construction;
- Remove the existing 58 Main Check Structure; and
- Construct the new 58 Main Check Structure.

Project Management

The administrator of the Fort Peck Tribes Water Resources Department will act as project manager with final authority over payments, reports, and contracts. The Fort Peck Water Users Association business administrator will provide coordination with the grant administrator (Great Northern Development Corporation), the engineering consultant, and the construction contractor. The engineer will provide final design and oversight of construction activities. Public input will be sought at monthly Fort Peck Water Users Association meetings and project-specific public informational meetings.

Upon award of this requested grant, site specific survey data will be collected and hydraulic modeling performed for final design. Upon completion of final design, the project will be ready to proceed.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$17,000	**$17,000**
Professional & Technical	$0	$0	$65,000	**$65,000**
Construction	$100,000	$0	$19,375	**$119,375**
Total	**$100,000**	**$0**	**$101,375**	**$201,375**

Based on the cost estimate provided in the application, the budget is sufficient to fund the proposed project. Unit costs used to develop the estimated cost of construction are reasonable and based on historic data for similar work. Additional funds are included under the professional/technical item for extra engineering work to collect site-specific data and conduct hydraulic modeling for final design of the check structure. Justification for the proposed action as the most cost-effective approach is provided in the application.

Ninety-two users purchase water from the FPIP at a cost of $17.50 per acre. A total of 19,000 acres is under irrigation. This project will not result in an assessment increase.

Matching funds for this project are secure; the only outstanding budget component is the Renewable Resource grant. If awarded, the project will be in a position to start implementation in the fall of 2007.

Benefit Assessment

The primary renewable resource benefit associated with this project is resource management. By replacing the deteriorated check structure, the intended, operational head will be restored allowing for more efficient water management. Some water should also be conserved by eliminating the current need to maintain head via additional flows and resulting excess spill. The project will also preserve the function of the water delivery system thus preserving irrigated crop land.

Environmental Evaluation

Short-term construction impacts include noise, dust, and soil and vegetation disturbance. Long-term impacts should all be beneficial including positive impacts to surface water. The application indicates additional analysis will be required to determine if any threatened or endangered species will be impacted as well as consultation with the State Historical Preservation Office regarding impact to cultural resources.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 30

Applicant Name	Sanders County		
Project Name	Eliminating Failed and Obsolete Septic Systems in Sanders County		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	6,500	Fees and Interest
	$	3,500	Sanders County and the Sanders County Community Development Corporation, In-Kind
Total Project Cost	$	110,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The project would establish a Revolving Loan Fund (RLF) with the $100,000 Renewable Resource grant. This fund would be accessible to eligible citizens in the county, to assist with the cost of replacing failed or obsolete septic systems, or hooking into a municipal system if one is nearby. The loans would remove a significant barrier people face in bringing systems into compliance. The RLF would be administered by the Sanders County Community Development Corporation (SCCDC). The RLF is part of an emergency measure to correct immediate and serious threats to water quality, aesthetics, and the environment, as well as human health and safety. The next phase of the program would seek long-range solutions for proper sewage disposal for each community and homeowner in the county.

Sanders County did not permit septic systems until 1995. Over 80% of the homes were built before septic permits, resulting in many inadequate, obsolete, illegal, and nonfunctioning septic systems. Communities with a high density of older septic systems include: Thompson Falls, Noxon, Trout Creek, Heron, Paradise, and Camas. The county sanitarian office has dealt with over 40 failed septic systems since May 2005. Failures have included collapsed metal tanks, surfacing effluent, pipes discharging sewage directly into “air vents,” and other illegal systems. Collapsing metal tanks present an additional safety concern, especially in residential areas.

Repairing these obsolete systems would “enhance the common well-being” of the citizens of and visitors to Sanders County by preserving and conserving water quality, a precious renewable resource.

Technical Assessment

Project Background

This project is needed because of the increasing number of obsolete septic systems that are failing in the county. Sanders County did not require septic permits until mandated to do so by state law in 1995. The geographical size and rural nature of the county makes it difficult to control illegal installation of septic systems.

Septic tank failures are mostly due to age and/or poor design. According to local citizens, metal tanks were installed in the county into the early 1980s. Many systems are simply cesspools lined with wood, rocks, bricks, or other materials. In Thompson Falls, “air vents,” packets of cold air in the rocky hillside, are often used for disposal of raw sewage, gray water, and septic tank effluent. These systems are 30, 40, or 50 years old and are becoming plugged and corroded. They fail, one to two per week, and even more often in high precipitation and run-off. The county’s public water supplies, the Clark Fork River, the Flathead River, wetlands, and various irrigation ditches, are at risk for contamination from these failing septic systems.

Sanders County has 18.2% of the population below poverty level. When a system fails, it often must be replaced immediately and can easily cost $3,000 to $7,000, but it may cost $15,000 or more depending on site conditions and soils. In cases where homeowners could hook up to a community sewer system but lack the money for hook-up fees, excavation, installation of connecting sewer, and engineering costs associated with hooking into the sewer main would qualify for loan funding.

Technical Approach

The county and the SCCDC will establish specific Revolving Loan Fund eligibility criteria, interest rates, administrative procedures, and collateral requirements. The RLF will be patterned after existing revolving loan programs that the county and SCCDC currently administer. A revolving loan committee would be established to review loan applications and oversee the program.

This is the first phase of the project and considered an emergency measure to correct immediate and serious threats to water quality, aesthetics and the environment, as well as human health and safety. The next phase of the program would seek long-term solutions. This will necessitate hiring an engineering firm to complete a countywide Preliminary Engineering Report (PER) to look for solutions.

As currently proposed, the loan application process includes:

- The homeowner/applicant must get a letter from a local lending institution turning them down for a loan to pay for replacement of the septic system or hook-up fees to a municipal system;
- For those able to make semiannual payments, a lien or second mortgage would be attached to the property for the amount of the septic system replacement. The application would be approved with a modest interest rate by the revolving loan committee. An administrative fee would be charged to cover an ownership search. Loan origination fees and recording fees would also be charged. The loan would be attached to the property and loan proceeds would be collected semiannually at tax time by the county and turned over to the SCCDC for credit against any outstanding balance owed to the RLF account. The charges would be removed once the loan is repaid;
- If for some reason, such as insufficient collateral, a homeowner is unable to secure traditional financing, which could be the case for low income individuals, a second lien or mortgage could be attached to the property and when the home is sold, the loan would be repaid; and
- It is expected that 25 homeowners could apply to the RLF in the first two years. As funds are repaid, homeowners could receive assistance as the RLF is repaid by existing homeowners.

Specific tasks to be accomplished:

- County will contract with the SCCDC to administer the revolving loan program;
- Educational activities will be implemented by the county sanitarian encouraging proactive replacement of obsolete septic systems before failure occurs, and informing the public of the revolving loan program;

- Accept loan applications and make loans based on recommendations of the revolving loan program advisory committee;
- County will work to improve the level of compliance with modern standards and regulations by septic installers and site evaluators through classes, newsletters, and individual site inspections.

Project Management

The county sanitarian and SCCDC staff will be able to manage this program. The county and SCCDC have worked together on similar RLF projects, so the administrative infrastructure for the program is in place.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$100,000	$0	$10,000	**$110,000**
Professional & Technical	$0	$0	$0	**$0**
Construction	$0	$0	$10,000	**$0**
Total	**$100,000**	**$0**	**$10,000**	**$110,000**

The budget provided is adequate. The county is going to contract with the SCCDC to administer the loan program. The county sanitarian will administer the grant in conjunction with the SCCDC. The initial proposal indicated that the interest rates set for the loans will be based upon the prime. A secondary reviewer commented that he thought the interest rate should be set just high enough to cover administrative costs. Minimal interest loans will provide a solution to monetary barriers to repair failed systems.

Benefit Assessment

The primary renewable resource benefits that would be realized from this project are preservation and management. Surface water and groundwater would be protected from failing septics, by providing an affordable source for low-income homeowners to replace failing or obsolete septic systems or hooking into a municipal system. The project will better manage water quality by replacing septic systems that pollute surface and groundwater resources.

Environmental Evaluation

There are no negative environment impacts. Failed septic systems threaten groundwater and surface water with contamination from nutrients, viruses, and pathogens. Besides groundwater, the Clark Fork and Flathead rivers would also be protected.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 31

Applicant Name	Malta Irrigation District		
Project Name	Dodson North Canal Regulating Reservoir		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	164,929	Local Match
Total Project Cost	$	264,929	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Malta Irrigation District is part of the Milk River Project and contains 42,492 irrigable acres. Water is supplied to these acres through a diversion dam at Dodson on the Milk River, which feeds into the Dodson South and Dodson North canals. Dodson South supplies water for irrigation, Bowdoin National Wildlife Refuge, and Nelson Reservoir, which stores water for the Malta and Glasgow irrigation districts. Dodson North supplies water for the Malta and Dodson irrigation districts.

A Water Conservation Plan is in place and one of the identified projects, a 261 acre-foot gravity flow regulating reservoir on Dodson North Canal, would conserve a considerable amount of water.

It takes seven days for water from Fresno Reservoir to reach Dodson Dam; other irrigation districts, pumpers, and the Dodson Irrigation District all take water at the same time. A regulating reservoir would allow the district to hold water so the fluctuation of the Dodson North Canal could be adjusted. This canal is about 28 miles long and this fluctuation causes a domino effect to irrigators below it. If water could be held in a reservoir on this canal, releasing water in a timely manner would conserve approximately 1,138 acre-feet of water per year. Another plus to this proposal would be the fact that this would be a gravity flow reservoir, so no machinery or pumps would be required.

A small regulating reservoir would provide habitat for wildlife, a migratory stop for birds, and possible recreational opportunities.

Technical Assessment

Project Background

The Malta Irrigation District is part of the Bureau of Reclamation's Milk River Project constructed between 1909 and 1917. The district contains 42,492 irrigable acres served by two main canals, the North Canal and the South Canal. The need for this project arises from operational inefficiencies of the nearly 90-year old irrigation distribution system.

The diversion of water by other users on the Milk River between Fresno Reservoir and the North Canal causes inconsistent flows in the canal. A regulating reservoir on the North Canal would allow downstream irrigators to utilize the water as needed. This reservoir would conserve 1,138 acre-feet of water per year.

Two alternatives were considered: (1) Ditch improvements with an overall ditch length reduction of 725 feet and potential water savings of 249 acre-feet per year and (2) a passive, gravity fed regulating reservoir in an alternate location from the preferred alternative with an annual water savings of 706 acre-feet.

Technical Approach

The project goal is to allow the Malta Irrigation District better use of its project water. The district will accomplish this by constructing a regulating reservoir on-stream of the 200 cfs North Canal. This will allow the district better control of the water flowing downstream and make it more usable to the irrigators.

Specific tasks to be accomplished:

- Establish agreements, easements, and/or rights-of-way with impacted landowners;
- Conduct seepage studies and percolation tests in preferred storage areas;
- Complete engineering report and all necessary permitting and licensing required for construction; and
- Solicit contractors and construct improvements.

Several alternatives, including the no-action alternative, were considered. The preferred alternative was selected based on the highest present worth of benefits and the highest cost-benefit ratio.

The preferred alternative reservoir will cover 100 surface acres and has a potential combined storage of 270 acre-feet. The water collected in the regulating reservoir will be held until downstream users can divert this water and put it to its intended irrigation purpose. The U.S. Bureau of Reclamation (USBR) will complete the NEPA compliance process that is required since the project will involve federal land. All other regulatory environmental compliance and permitting required for construction will be completed by the Malta Irrigation District and would not pose a restriction to the project.

The Malta Irrigation District hired an engineering firm to prepare a preliminary engineering report (PER). The PER identified areas the district could improve water efficiencies; it also evaluated alternatives and recommended improvements based on present worth analysis and cost-benefit ratios. The PER was completed in May 2006.

Project Management

The Malta Irrigation District is an organized irrigation district with a project manager, field manager, and two secretaries. The district project manager will take charge of the project management. Based on previous DNRC RRGL projects completed, he is well qualified to manage this project. The project manager will work with DNRC staff in Helena, the USBR, and state and local governments to ensure that the required permits and licensing are obtained. The Malta Irrigation District stakeholders and the general public will be notified of the project progress through newsletters. The staff of the Malta Irrigation District will make themselves available to the public for questions. The project budget allows for funding to support the financial and administrative aspects of the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$6,800	$0	$0	**$6,800**
Professional & Technical	$27,751	$0	$0	**$27,751**
Construction	$65,449	$0	$164,929	**$230,378**
Total	**$100,000**	**$0**	**$164,929**	**$264,929**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. The district will assess an additional $3.75 per irrigable acre to help with construction and maintenance costs. Costs of the other alternatives are provided. The project cost of the preferred alternative is the highest; however, the present worth analysis at 80 years and cost-benefit ratio justify its selection.

Benefit Assessment

The primary benefit to renewable resources is resource conservation. The current fluctuations in flows of the Dodson North Canal do not allow for optimal use of project water that is diverted for irrigation by the Malta Irrigation District. The proposed reservoir would result in 1,138 acre-feet of project water for members of the district; this water is returned to the Milk River without benefit.

Environmental Evaluation

No long-term adverse impacts are attributable to construction of the regulating reservoir. The uniform environmental checklist has been completed and the selected alternative will either result in no impact to the environment or will have a beneficial impact on the environment and the surrounding wildlife populations.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 32

Applicant Name	Red Lodge, City of		
Project Name	Red Lodge Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	15,000	Applicant
	$	2,905,000	RD Loan
	$	750,000	TSEP Grant
Total Project Cost	$	3,770,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

Red Lodge was founded in the mid-1880s and has had a municipal water system for almost 100 years. Although the city has continually improved the water system since the 1970s, some elements are nearly as old as the system itself.

The city's water distribution system has the following deficiencies:

- Undersized distribution lines;
- Insufficient storage;
- Insufficient number of hydrants; and
- Transmission lines at the end of their service life.

The water distribution system suffers from several serious deficiencies including:

- Lack of adequate fire flows;
- Loss of about half (48% to 54%) of its treated water to leakage, a significant waste of resources and a limiting factor in Red Lodge's economic growth; and
- Potential contamination of its drinking water supply due to negative pressure in leaking transmission lines.

The following water distribution system improvements are recommended to solve these deficiencies:

- Replace all existing two-inch mains within city boundaries;
- Replace all four-inch mains west of Word Avenue;

- Install a concrete storage tank at the water treatment plant to ensure adequate water at peak- and fire-flow conditions;
- Install new fire hydrants; and
- Replace transmission lines from the treatment plant to the city.

Benefits to natural resources as a result of this project include conservation of millions of gallons of treated water that would otherwise be lost to leakage, expansion of system capacity to allow for future growth, development of water storage, preservation of system water quality, and improvement of infrastructure to allow for future economic development and population growth.

The total cost of the above improvements is estimated at $3,770,000. The proposed repairs will correct existing deficiencies.

Technical Assessment

Project Background

Red Lodge operates and maintains a public water system in the community, utilizing both surface water and groundwater as sources. The system serves 2,624 persons with a projected growth rate of 2.2% annually, resulting in a population of 4,140 for the project 2026 design year. Although the water supply is adequate for current and design year needs, the project is required to (1) improve components of the distribution system and (2) reduce leakage. Alternatives for replacement of the transmission main from the water treatment plant to the distribution system were considered. Replacement of existing undersized mains is also proposed, generally with new eight-inch mains. Additional storage will allow for adequate reserve volume to meet peak demands.

Technical Approach

The alternative evaluation consisted of two options to replace the existing dual transmission mains--a single new main or pipe bursting of the existing mains, followed by insertion of a large diameter HDPE pipe. A new main was found to be the most cost effective option. The no action alternative was considered and rejected. No alternatives to proposed replacement of the existing undersized distribution mains were considered, although the needed projects were prioritized and only the highest priority projects recommended for implementation. Projects were selected for construction through a systematic analysis of public health, need, safety, and resource benefits. Environmental impacts will generally be short-term and construction-related. The Montana Natural Heritage Program identified some species of concern in the project area. Presence of these plant and animal species may necessitate further investigation during design of the project to mitigate adverse impacts. The applicant anticipates that the project will be designed in winter 2007, bid in early spring 2007, and constructed during the 2008 construction season.

Specific tasks to be accomplished:
- Replace approximately 9,600 lineal feet of eight-inch and 10-inch parallel transmission main with a new 16-inch transmission main which will bring water from the water treatment plant to the city's distribution system;
- Replace approximately 1,800 lineal feet of two-inch water main and 7,200 lineal feet of existing four-inch water mains with new eight-inch mains;
- Construct a new 300,000-gallon concrete water tank near the water treatment plant; and
- Install nine new fire hydrants.

Project Management

The proposed project management plan indicates that local and professional staff will be used to administer and manage the proposed project from design through completion and close-out. Plans for keeping the public involved in future stages of the project development process were discussed. A complex financial package is being pursued to support the first phase, and project administration will be demanding. The budgeted amount for professional services

for project administration may not be sufficient unless local officials plan on assuming some of the administrative activities typically performed by a grant administrator.

The project planning has been completed and the project appears to be ready for design in 2007 and ultimate completion in 2008. While the applicant intends to involve the public in the future, public involvement in the planning process has been limited.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$32,000	**$32,000**
Professional & Technical	$0	$0	$541,000	**$541,000**
Construction	$100,000	$0	3,097,000	**$3,197,000**
Total	**$100,000**	**$0**	**$3,670,000**	**$3,770,000**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a fairly detailed breakdown of unit construction costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate.

The town's funding strategy appears reasonable with a TSEP grant, and local resort tax and RD funds in addition to the DNRC grant request. RD will be utilized to provide loan funding for the project and appropriate financial terms were included in the project budget to account for the loan. The community has 1,383 hookups. Typical residential water rates are expected to increase from of $20.66 per month to $29.25 per month after project implementation.

Benefit Assessment

The primary benefits to renewable resources will be conservation through reduction of leakage from the city's water mains, primarily the transmission mains. An estimated 48% to 54% of the produced water is lost to leakage and the consultant has estimated that this leakage could be reduced by 30% with implementation of the proposed project. The leakage is chlorinated water which leaks into underlying groundwater. Reducing this leakage into the groundwater will have the benefit of preserving the high quality of local groundwater. Reduction in leakage will also allow growth and development in the community without the need for more water, thereby saving the water for other uses.

Environmental Evaluation

The proposed project will have a long-term beneficial environmental impact through reduction of leakage from existing transmission mains, estimated to be as much as 50% of the treated water produced. Sensitive species have been identified in the project area and steps must be observed to mitigate adverse impacts. Minimal short-term, construction-related impacts will be controlled through proper construction observation and limiting specifications.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 33

Applicant Name	Elk Meadows Ranchettes County Water District		
Project Name	Elk Meadows Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	22,450	Applicant
	$	305,180	DW SRF Loan
	$	410,000	TSEP Grant
Total Project Cost	$	837,630	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Elk Meadows Ranchettes County Water District is in western Montana, roughly 20 miles west of Missoula. The district's water system utilizes two wells which provide water to 55 existing homes. Other components of the system include three small tanks, an 110,000-gallon storage tank, 16,600 lineal feet of water main, two booster stations, and seven fire hydrants. The water is disinfected with chlorine and a corrosion inhibitor added before distribution.

The primary deficiencies associated with the Elk Meadows water system pertain to health and safety issues caused by an inadequate supply of water for domestic and fire protection needs. The system cannot provide sufficient water during high demand periods and no redundancy is provided by the wells, given the limited capacity of each well. The district lacks adequate water rights to meet existing and anticipated maximum demands. The water supply is corrosive and violates regulatory standards for copper, creating a public health hazard. The distribution system, in part, is undersized and does not have meters on service connections. The water storage tanks in the system are inadequately sized.

The proposed solution includes development of water resources by construction of two new wells. A hydrogeological study is included in the project to locate an adequate source of water and obtain needed water rights. Water resources will be conserved after installation of water meters, which are included in the project scope. Reduced water use will also conserve energy required for the booster pumps and a reduction in chemical use is also anticipated. The existing 110,000-gallon storage tank will be expanded to allow additional volume to better utilize existing water resources. An aeration system is proposed to reduce the corrosiveness of the water and preserve the utilization of the existing groundwater resources. A portion of the existing water mains will be replaced to allow for better flow capacity. The distribution system will also be looped to improve system hydraulics and maintainability.

Technical Assessment

Project Background

The original components of the Elk Meadows Ranchettes water system were completed in 1978. The original system components included three 13,000-gallon storage tanks, two booster stations, two wells, 8,700 lineal feet of asbestos cement pipe, 7,900 lineal feet of three-inch asbestos cement pipe, and five fire hydrants. In 2000, two new eight-inch wells were drilled to replace the original poorly constructed wells. Further work on the system between 2000 and 2003 included a 110,000-gallon glass-lined steel storage tank, two booster pumps in the lower pump house, a radio telemetry control system, and relocation of one of three original 13,000-gallon storage tanks to the lower pump house. Equipment was also installed in the lower pump house to allow injection of liquid sodium hypochlorite for disinfection and blended polyphosphates as a corrosion inhibitor. The water system utilizes two groundwater supply wells which provide water to 55 existing homes.

Water modeling indicates that the undersized lines cannot provide adequate flow for fire protection. The development is in a remote wooded setting and adequate fire protection is an important consideration. The water storage tanks in the system offer marginally sufficient storage for existing demands but lack adequate volume for design storage

needs. However, the limited production from the water supply wells exacerbates the limitations in the storage volume available and the primary storage tank has been drained during high demand periods. The existing system does not have provisions for auxiliary power.

Technical Approach

The applicant proposes the installation of water meters to reduce water usage within the system. The meters will be installed in meter pits to ensure that water usage is measured before entering the home and for ease of maintenance and meter reading. The project proposes construction of two new water wells to supplement existing wells and provide adequate redundancy and supply volume. A new booster pump is needed in the upper pump station to ensure reliability of water supply and critical component redundancy.

The applicant examined several alternatives for corrosion control. Aeration was the recommended alternative due to water chemistry, lower operation and maintenance costs, and lower operation complexity than other evaluated alternatives.

The water distribution system was modeled and several scenarios for improvements considered. Replacing all of the existing asbestos cement pipe with PVC was too expensive and not warranted. The preferred alternative replaces portions of the existing mains, loops two dead-end mains, and improves fire flows.

The proposed water storage improvements include expanding the existing 110,000-gallon water storage tank to provide required fire flows and upgrading rather than replacing an existing upper tank.

The project is proposed to begin design during summer 2007 and be completed by the end of 2008.

Specific tasks to be accomplished:

- Drill one and, if necessary, two new wells;
- Install second booster pump in upper pump station;
- Install aeration equipment for corrosion control;
- Loop water mains and install new main in distribution system;
- Install water service meters;
- Expand middle storage tank; and
- Upgrade upper storage tank.

Project Management

The project management plan outlines duties for the project manager, engineer, attorney, bond counsel, and district board. This provides for a staff of specialists to perform duties important to the project within their areas of expertise. The project manager and district board will inform the public through regularly scheduled council meetings.

The project management plan provides for thorough and well-organized contract management with regulatory and funding agencies, consultants, contractors, and other involved parties. Roles of the project manager are defined in the grant application and are appropriate given the budget allocations and project approach. The project budget allows for funding to support the financial and administrative aspects of the project. The proposed project schedule anticipates completion within two years.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$30,500	**$30,500**
Professional & Technical	$0	$0	$150,180	**$150,180**
Construction	$100,000	$0	$556,950	**$656,950**
Total	**$100,000**	**$0**	**$737,630**	**$837,630**

The project budget is complete and includes adequate detail to show that the proposed budget is sufficient to complete the proposed project. The applicant has applied for a TSEP grant for $410,000. The applicant plans to obtain DW SRF loan funding for $305,180, and has used local reserves for $22,450 for the remainder of the project budget. The applicant is eligible for both TSEP and DW SRF funding.

The applicant is a government entity with the ability to collect charges for debt and operation. Current residential charges for water service are $60.78 per month. The projected residential rate is $97.03 per month and will affect 55 households. Current and projected water rates exceed the target rate for water only systems.

Cost estimates were provided for each of the alternatives considered and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has resource conservation, management, development, and preservation benefits.

Resource conservation benefits include the installation of water meters to improve water use efficiency. The grant application states that at least 10% to 20% reduction in total water use can be anticipated. The proposed project will also increase the fire-fighting capability of the district.

Resource management benefits include: (1) installation of water meters and new booster controls will improve the town's ability to control and administer the renewable resource; (2) expansion of the water storage tank will enhance the district's ability to maintain sufficient water reserves for fire protection and peak demands; (3) looping of mains will allow for better water service during maintenance of the system if portions of the system must be isolated for repair; and (4) redundant booster pump for the upper pressure zone will allow for easier maintenance of the station and benefit back-up pumping.

Resource development benefits include construction of two new wells which will expand the use of groundwater resources, provide an adequate amount of water for existing users, and allow for limited growth.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 34

Applicant Name	Rae Water and Sewer District		
Project Name	Rae Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	167,750	Applicant / Developer Fees
	$	450,000	CDBG Grant
	$	140,301	DW SRF Loan
	$	750,000	TSEP Grant
Total Project Cost	$	1,608,051	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Rae Water and Sewer District is supplied by four groundwater wells operated by a collection of large hydropneumatic tanks near the center of the district. The hydropneumatic tanks provide a cushion for the surges that would otherwise be created by activation and deactivation of pumps through the system. The effective storage quantity is negligible for these tanks and all peak hourly demands must be met by the wells. The existing distribution system consists of four-inch, six-inch, and eight-inch polyvinyl chloride (PVC) pipe. The King Arthur Trailer Court is served entirely by four-inch lines, with considerable leakage.

As determined in the Preliminary Engineering Report (PER), the district's water system has the following deficiencies:

- Lack of storage: The district has a complete lack of water storage;
- Lack of centralized control system: The expanding district will soon have five independent wells for which control and management is time consuming, and with no quick indication of failures. The district has run out of water an average of one or two times per year, leaving the system open to contaminated water infiltrating in as a vacuum is drawn by water moving from high pipes to lower areas;
- Lack of fire protection: The hydrants in Meadow Brook and the Rae Subdivision indicate some fire protection is planned, but none is available. According to the Montana Department of Environmental Quality (DEQ), since there is intent to provide fire protection, the district is obligated to provide fire protection for the whole district;
- Pipe network: Major improvements are needed within the trailer court to deliver fire flow regardless of the storage quantity provided (does not meet the minimum of six inches for a hydrant connection) and to reduce leakage; and
- Lack of supply: Current supply is insufficient to meet peak hour demand when the largest well is out of service.

The proposed improvements, as recommended in the PER and as indicated by the district, consist of constructing a new 380,000-gallon water storage tank, upgrading the existing Supervisory Control and Data Acquisition (SCADA) system to include the water system, installing a new eight-inch water main through the trailer court, and installing a new six-inch "raw" water line from the two main wells to the tank. The new SCADA system will allow the district to actually save on operation and maintenance costs. The new water main will reduce the considerable amount of leakage and will allow fire protection for the trailer court. The water storage tank will provide the water capacity needed for fire protection as well as provide an adequate supply of water to meet peak hour demands.

Technical Assessment

Project Background

The Rae Water and Sewer District is in Gallatin County, just west of Bozeman. The original water system was constructed in the early 1970s. The district recently upgraded its wastewater system, but has not conducted any

major water system improvements in recent decades, other than the addition of new wells. The system currently serves 314 users.

The water supply consists of four water supply wells. A fifth well is soon to be completed in an adjacent subdivision and will be added to the system as a condition of the subdivision approval. Two of the wells are equipped with backup power generators.

The district has no water storage capacity. A collection of large hydropneumatic tanks provides a cushion for the surges that would otherwise be created by the activation and deactivation of the pumps in the system. The effective storage quantity is negligible and all peak hour demands must be met by the wells. Since the system has no storage, it is highly susceptible to backflow contamination due to substandard pressures within the mains particularly during a water main break.

Portions of the distribution system are undersized for desired flows, particularly in King Arthur Trailer Court and leakage in the distribution system is evident. The lack of storage combined with an undersized distribution system does not allow adequate fire protection.

The system lacks a centralized control system to operate and manage the water supply. There is no quick indication of well failures and management of the system is time consuming.

Technical Approach

The applicant examined several alternatives for addressing inadequate fire flow and storage. The selected alternative includes installation of a 380,000-gallon tank near the district offices and construction of a booster pump system to provide adequate pressure throughout the system. The water line through the trailer court will be replaced with a larger sized pipe to allow for sufficient fire flows. A dedicated raw water line will be constructed connecting the two wells equipped with backup power directly to the storage tank. This alternative is the most cost-effective approach to the community's storage and fire flow needs.

The SCADA system for the existing wastewater system will be upgraded to include operation and control of the water supply wells, storage tank, and booster pump system.

The project is proposed to begin design during summer 2007 and be completed by the end of 2008.

Specific tasks to be accomplished:

- Construct 380,000-gallon tank next to the district office;
- Construct 3,600 feet of new eight-inch distribution main;
- Construct 1,900 feet of raw water line from two wells to the tank;
- Construct new booster pump station and backup generator; and
- Upgrade existing SCADA system to include wells and storage tank.

Project Management

The proposed project involves several funding agencies and the district will hire a project manager for the project. The project manager will be responsible for keeping each funding agency informed of project progress. The project management plan outlines the duties for the project manager, engineer, attorney, bond counsel, clerk-treasurer, and the district board. This provides for a staff of specialists to perform duties important to the project within their areas of expertise. The project manager and district board will inform the public through regularly scheduled board meetings.

The project management plan provides for thorough and well-organized contract management with regulatory and funding agencies, consultants, contractors, and other involved parties. Roles of the project manager are clearly defined in the grant application and are appropriate given the budget allocations and project approach. The project budget allows for funding to support the financial and administrative aspects of the project. The proposed project

schedule anticipates completion within two years. The project will be ready for start-up of design once the district is confident grant funds will be awarded.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$63,569	**$63,569**
Professional & Technical	$0	$0	$250,641	**$250,641**
Construction	$100,000	$0	$1,193,841	**$1,293,841**
Total	**$100,000**	**$0**	**$1,508,051**	**$1,608,051**

The project budget is complete and includes adequate detail to show that the proposed budget is sufficient to complete the proposed project. The applicant has applied for a TSEP grant for $750,000 and a CDBG grant for $450,000. The applicant plans to utilize district funds in the amount of $167,750 and obtain DW SRF loan funding for $140,301 for the remainder of the project budget. The applicant is eligible for TSEP, CDBG, and DW SRF funding.

The applicant is a local government with the ability to collect charges for debt and operation. Current residential charges for water service are $33.21 per month. The projected residential rate is $37.76 per month, and will affect 335 households. The existing sewer rate is $43.56. This will result in a combined residential utility bill (water and sewer) of $81.32 which exceeds the target rate by $14.10 per month (121% of the target rate).

Cost estimates were provided for the alternatives considered for each of the project components and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has resource conservation, management, and preservation benefits.

Resource conservation benefits include replacement of portions of the distribution system that currently experience leakage. Management benefits include installation of a telemetry system which will improve the district's ability to control and administer the renewable resource. Preservation benefits include improving the existing water system to continue the renewable resource benefits that exist today.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 35

Applicant Name	Stillwater Conservation District		
Project Name	Stillwater-Rosebud Watershed, Surface Water/Groundwater Interactions		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	17,835	MBMG, Indirect
	$	10,000	Applicant, In-Kind
Total Project Cost	$	127,835	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Stillwater River and Rosebud Creek watershed has experienced tremendous population growth (over 28% between 1990 and 2000). People are drawn to the region by the scenic views and the numerous high-quality streams and fisheries, so they have a desire to maintain and protect these water resources into the future. However, the increasing population also poses a risk to these streams. Groundwater pumping may intercept baseflow to streams, or it may even intercept streamflows directly. The relationships between groundwater and surface water have not been defined in the watershed. It is also not known how much development area aquifers can support.

This project will collect integrated groundwater and surface water data necessary to better manage and plan development in the watershed. Data from the project will be used to evaluate aquifer potential, assess recharge sources and rates, and evaluate the interactions between groundwater and the streams. The project will build upon previous well inventories to create a detailed groundwater monitoring network to evaluate seasonal level fluctuations. At selected locations, paired wells will be installed and tested to define aquifer characteristics. In addition, an extensive network of stream gauging sites will be established to assess groundwater discharge to streams and ditches and/or groundwater recharge from streams and ditches. This information will enable resource managers and area residents to make more informed decisions to manage development to protect the area streams. Public meetings will be conducted throughout the project to obtain public input and to present preliminary findings. Project information will be available free from the Internet and will include a report and maps depicting aquifer distribution, probable drilling depths, and groundwater flow patterns. The final report will describe how the data were collected and describe what the information means.

Technical Assessment

The purpose of the project is to collect and evaluate hydrogeologic data to assist in planning and managing development occurring in the Stillwater-Rosebud watershed. Groundwater availability, flow, recharge, and groundwater/surface water interaction will be characterized.

Project Background

The Stillwater-Rosebud watershed has experienced a 28% increase in population growth between 1990 and 2000 (based on the last census data). All residential homes in the area depend on groundwater as their only source of potable water. Data are needed to assess potential impacts to water resources from additional wells, pond construction, and changes in irrigation practices. Landowners, ranchers, developers, and resource managers will use the hydrogeologic information to make informed land and water use-related issues. Several alternatives, including the no action alternative, were considered for the project. Other funding sources for this type of regional project are not available.

Technical Approach

The preferred alternative will build upon well inventory data and hydrogeologic data previously collected by the Montana Groundwater Assessment Program. Data will be used to characterize groundwater availability, flow, recharge, and surface water interactions of the aquifers in the Stillwater-Rosebud watershed. This alternative was selected based upon results needed to obtain the following objectives:

- Collect groundwater and surface water data;
- Characterize the groundwater and surface water systems; and
- Disseminate project information to Stillwater County residents in useful and available formats.

The results from this study would include: (1) placing groundwater and surface water data on the Ground-water Information Center (GWIC) database; (2) maps identifying groundwater availability, flow, and probable well drilling depths; and (3) an understanding of the relationship between groundwater and surface water systems. Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts would result.

Specific tasks to be accomplished:

- Collect groundwater and surface water data throughout the watershed; collect groundwater samples for age analyses and recharge tracers (isotopes); and install test wells and perform aquifer tests on major aquifers in the area;
- Characterize the groundwater and surface water systems including evaluating and interpreting the project data; and
- Disseminate the project information to the public, including holding public meetings, preparing a project report, and distributing the report on the MBMG web page.

Project Management

The project will be administered by the Stillwater Conservation District (CD) administrator. MBMG will oversee technical activities associated with this project. The Stillwater CD staff, MBMG staff, and other stakeholders will work together to ensure that appropriate data are collected and that the public has the opportunity to participate in the data-collection process. Roles of the project manager are not clearly defined in the grant application and need to be clarified before contracting. The project budget allows for funding to support the financial and administrative aspects of the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$10,000	$0	$10,000	**$20,000**
Professional & Technical	$58,110	$0	$17,835	**$75,945**
Construction	$31,890	$0	$0	**$31,890**
Total	**$100,000**	**$0**	**$27,835**	**$127,835**

This budget appears sufficient and reasonable to fund the proposed project, although a detailed breakdown of unit costs and Stillwater CD community support efforts should be provided before contracting. In general, material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Administration costs appear high and should be reassessed before contracting. No costs of the various alternatives are provided, but justification for the proposed action as the least-cost alternative in the long run is provided and is reasonable.

Aside from the direct benefit to individual landowners who will host monitoring wells (and allow access to and across their property), the proposed investigation will positively assist residents in the study area by providing hydrogeologic data for use in reaching informed land-use decisions for this portion of Stillwater County. Groundwater users, as well as surface water rights holders and recreational users, will directly and indirectly benefit from decisions based on technically reliable data collected during this study.

Benefit Assessment

The primary benefits to these renewable resources (groundwater and surface water) are resource management and resource preservation. The proposed project would result in measurable benefits of groundwater and groundwater/surface water interaction management through the identification of areas of critical concern vulnerable to water availability and water quality impacts. The information will be important to help manage land use, irrigation, development, and other water resource-related decisions. The proposed project would provide the necessary data for use in understanding and protecting the limited groundwater and surface water resource.

In addition, secondary benefits from the proposed project include addressing resource conservation and resource development issues. As the land use in the watershed changes from traditional agricultural uses to more residential development, the potential exists to change (reduce) groundwater recharge to the underlying alluvial aquifer. Depleted groundwater sources could cripple the community. This study plans to identify and evaluate recharge potential and water quality of the alluvial aquifers in the study area and help identify areas where the aquifers are particularly vulnerable to land-use changes. In addition, the information obtained from this study will help current water users protect their existing water rights.

All of the above benefits are relatively long-term and would be quantified through the use of data collected as part of this project. Future groundwater beneficial-use permit application reviews will have sound site-specific hydrogeologic data for use in making informed decisions as a result of the data collected as part of this study.

Environmental Evaluation

The proposed project is a data collection and evaluation project. The beneficial results are primarily related to the collection of important hydrogeologic data for use in evaluating the groundwater and surface water systems in the Stillwater and Rosebud watershed study area. Groundwater data obtained from the project study will assist in planning use and development of the aquifers in the watershed. Surface water data collected as part of this study will be used to evaluate groundwater and stream interaction. The data will be used to evaluate areas that can sustain groundwater development without impacting streamflow or surface water quality.

Minimal short-term, construction-related impacts (from installation of the test wells) will be controlled through permitting, landowner access permission, and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 36

Applicant Name	East Bench Irrigation District (EBID)		
Project Name	East Bench Irrigation District Canal Lining		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	21,150	Applicant, In-Kind Labor and Materials
Total Project Cost	$	121,150	
Amount Recommended	$	100,000	Grant
Project Abstract	(Prepared and submitted by applicant)		

The EBID is located near Dillon. The district is requesting funds through the Renewable Resource Grant and Loan Program (RRGL) for design and construction of canal lining in the main irrigation canal. The goal of the project is to provide EBID with an irrigation infrastructure improvement that will conserve water resources and increase crop yields. This project was conceptualized by EBID as the first step in long-range planning and modernization efforts, and was initiated through an RRGL planning grant.

An engineering firm investigated existing infrastructure and operational controls of EBID and evaluated irrigation system alternatives. The primary recommendation of the study is to install liner in 1,175 feet of the main canal so the district can conserve water resources, reduce canal seepage, and increase crop production. Currently, there is not enough irrigation water to satisfy the crop water consumption requirements. The seepage loss is about 10 cubic feet per second (cfs) or 20 acre-feet per day, or 2,585 acre-feet annually. A direct consequence of the water shortage is a reduction in crop yields of over 1,293 acres. The result: an estimated annual revenue loss to the community of approximately $387,900.

Implementation of the proposed project will potentially result in significant economic benefit to the community. Improved canal efficiency and decreased canal seepage will increase irrigation delivery and allow EBID to provide more water to water users during the most critical time of the irrigation season. If increased water supply through improved canal efficiency can increase annual revenue by 50%, the additional $193,950 in revenue will potentially generate an additional $678,825 to $1,357,650 in annual economic activity.

Technical Assessment

Project Background

The EBID storage and distribution works were completed in 1964 and have begun to deteriorate. To identify potential problems caused by deterioration, EBID commissioned an engineering study that was completed in 2006. The engineering study report (ESR) presents an inventory of the seepage areas of the main canal and identifies issues that need to be addressed. The primary recommendation of the ERS is for EBID to install 1,175 feet of canal liner in the main canal to reduce seepage. Other alternatives considered were no action and three types of canal liners.

Technical Approach

The goals of the project are to maximize the beneficial use of EBID's water rights and conserve water resources through the installation of canal lining and improved management practices. The preferred alternative is to install canal liner to the 1,175 feet of main canal identified in the ESR. The canal liner alternative was selected to minimize both initial and future O&M costs, maximize performance, and avoid current environmental concerns associated with canal seal. All three types of canal liners have similar environmental impacts. The greatest potential environmental impact of lining a canal is reducing water for wetlands created by historical seepage. The applicant indicated that no wetlands are located along the canal that would be eliminated by the proposed canal lining project. Project implementation would begin in July 2007 with the detailed engineering report. Construction is anticipated to begin in October 2007 and be completed in December 2007.

Specific tasks to be accomplished:

- Detailed engineering report with construction sequence;
- Canal shaping;
- Gravel ballast processing; and
- Canal liner installation.

Project Management

EBID indicates that it does not have proper staff to successfully manage the project and will hire an engineering firm for a large part of overall project administration. The ESR for this project was completed in spring 2006 and the project will be ready for construction as soon as funding is available and after the current irrigation season is over. The applicant has made minimal plans for public involvement.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$0	**$0**
Professional & Technical	$20,000	$0	$0	**$20,000**
Construction	$80,000	$0	$21,150	**$101,150**
Total	**$100,000**	**$0**	**$21,150**	**$121,150**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Costs of the various alternatives are also provided. Justification for the proposed action as the least-cost alternative in the long run is provided and is reasonable.

EBID currently assesses fees of $1,475/acre and $6/acre-foot on 22,690 acres over 155 farms. The proposed project will not impact these fees. EBID appears able to provide the matching labor and materials listed in the budget. There is no back-up plan for this budget; if this grant is not approved, EBID will not carry out the project.

Benefit Assessment

The primary benefit to renewable resources is conservation of water currently lost to canal seepage. Estimates made by the applicant indicate that 2,585 acre-feet of water are lost to seepage annually. Although this project would result in measurable water savings, no measuring devices are in place to determine the exact amounts conserved. One secondary benefit is improved resource management. Canal lining would provide a permanent solution to an ongoing O&M problem. In addition, lining will allow EBID to better manage and deliver irrigation water through the system. The conserved water would be used to increase irrigation water supply to 1,293 acres currently underirrigated, thus representing enhanced existing benefits.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 37

Applicant Name	Dayton Lake County Water and Sewer District		
Project Name	Dayton Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	2,066,100	ACOE 595 Grant
	$	5,000	Applicant
	$	533,400	RD Loan
	$	1,879,500	STAG Grant
	$	750,000	TSEP Grant
Total Project Cost	$	5,334,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The unincorporated Community of Dayton sits on the West Shore of Flathead Lake near the northern end of both Lake County and the Flathead Indian Reservation. The townsite was platted in the early part of the last century and is home to 86 families, a church, restaurant, school, and the largest marina dedicated to sailing boats on the lake. A water and sewer district was formed in 2001 to find a way to confront the ongoing problem of periodic local flooding, causing septic discharges and contaminating the community and Flathead Lake.

The community has no public facilities and depends on shallow wells and direct pipes into the lake for domestic water and individual septic systems for sewage treatment. The platted lots are too small to allow the development of both a well and a septic system on the same lot so residents own three or four lots to get the required space. An impervious clay layer of soil exists, lying from 12 to 50 feet below the surface. This layer narrowly defines the potential treatment layer for septic effluent and tends to channel groundwater from the Dayton Creek drainage and any contaminants directly into the lake without allowing the normal soil treatment of septic that a deeper and less active system offers.

Due to its proximity to the lake this shallow soil profile and high groundwater increases the likelihood of periodic local flooding during spring runoff. Unfortunately, much of this flooding often occurs over existing septic drainfields causing effluent to mix with the flood waters and spread throughout the community before draining into the lake.

The district proposes to construct a sewage collection and treatment system. The collection system will consist of 15,000 feet of pipe and two lift stations. The collected effluent will be pumped to a facultative lagoon system, disinfected, and spray-irrigated on 30 acres of crop land.

Technical Assessment

Project Background

The district is located completely within the boundaries of the Confederated Salish and Kootenai Tribes (CSKT) of the Flathead Reservation. The major treatment alternatives considered were an accelerated facultative lagoon, a partially mixed aerated lagoon, and connection to the existing Elmo lagoon system.

Technical Approach

The preferred collection system alternative, gravity sewer mains with two lift stations, was chosen because of its low cost and easy operation and maintenance requirements. A new accelerated facultative lagoon system with tablet chlorinator and spray irrigation was selected as the preferred treatment and disposal alternative on the basis of cost, reliability, operational ease, flexibility, and energy efficiency. The major environmental impacts considered in the selection of the preferred alternative were the ability of the facility to operate with low energy input and to convert wastewater into a useful resource. Mixers in the lagoon will be driven by wind or solar power, with battery backup. Chlorination of wastewater effluent may not be necessary if there is adequate buffer around the spray irrigation area.

The Preliminary Engineering Report did not give tentative start and completion dates. The project will likely begin once the necessary funding has been secured.

Specific tasks to be accomplished:

- Purchase land for the wastewater treatment and disposal areas;
- Construct a new accelerated facultative lagoon;
- Construct a new storage pond and spray irrigation system;
- Construct the new tablet chlorination system;
- Construct approximately 13,000 feet of eight-inch PVC gravity sewer main; and
- Construct approximately 800 feet of four-inch force main.

Project Management

The project management plan identifies the district board president as the primary contact. The grant administrator will manage all of the various funding sources and the project engineer will be responsible for design and construction activities. Because the wastewater treatment facility is within Tribal boundaries, the Environmental Protection Agency (EPA) will issue a discharge permit if necessary. The Montana Department of Environmental Quality (DEQ) will review the wastewater system design report, plans, and specifications. Project design will begin once adequate funding has been obtained. With two congressional appropriations as the major portion of the funding package, a start date is not yet secure. The district proposes to continue a regular publication of newsletters and articles in the press in order to keep the public involved.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$70,000	**$70,000**
Professional & Technical	$0	$0	$0	**$0**
Construction	$100,000	$0	$5,164,000	**$5,264,000**
Total	**$100,000**	**$0**	**$5,234,000**	**$5,334,000**

The total project cost is $5.334 million dollars and depends on a $2.0661 million ACOE 595 grant and a $1.8795 million STAG grant. Applications for these congressional appropriations were submitted in January 2006. Since more than 60% of the project funding depends on federal appropriations and the timing of the funding is unknown, complete funding of the project may be difficult. It is proposed that there will be an increase in the RD loan if a special appropriation is not made, but this would add significantly to the projected user rate of $71 (based on receipt of the two federal appropriations and the connection of all 86 Dayton homes to the new public wastewater system).

According to the project engineer, Dayton will likely not have the authority to force homes to connect to the new wastewater system. However, there will be monetary incentives to do so. A homeowner who does not hook up immediately will have to pay a lump sum of principle and interest on time elapsed before they do hook up. A homeowner with a failed on-site wastewater system will be forced to connect to the new community wastewater system.

The proposed new sewer user fee is $71 per month, including approximately $41.20 for operation and maintenance costs and $29.80 for loan repayment. Project costs are generally reasonable. The operation and maintenance costs assumed successful operation of the wind- or solar-powered mixers in the lagoon cells. If these mixers with their battery back-ups are not successful and conversion to electrical power is necessary, operation costs will increase. Difficulty in locating a good irrigation site in close proximity to the lagoon system would also add to project costs and result in a higher user rate.

Benefit Assessment

The primary benefits to renewable resources are in resource conservation, with secondary benefits in resource management and development. Conservation benefits are obtained through implementation of a spray irrigation system using treated wastewater. Currently wastewater is discharged to individual on-site wastewater systems and is suspected of negatively impacting area wells and Flathead Lake. By collecting the wastewater into a communal system, the wastewater is put to beneficial use in irrigating crop land.

The proposed project will eliminate as many as 86 on-site wastewater systems along the shore of Flathead Lake at Dayton. This will reduce the loading of nitrogen and phosphorus to the lake, thus improving Flathead Lake's water quality and enhancing lake recreation and fisheries.

Environmental Evaluation

The proposed project will result in overall positive benefits for Flathead Lake and the surrounding environment. Part of the problem with the wastewater systems is caused by the lack of a storm water system in the area. Storm water has traditionally run over a number of drainfield systems on its course to the lake. While the elimination of the on-site systems will improve the quality of the storm water reaching the lake, heavy sediment and nutrient loading will still go to Flathead Lake from unmanaged storm water. As noted by the Lake County Health Department, increased density (because of growth due to the availability of the public wastewater system) may negate any improvement of lake water quality unless storm water management and homeowner practices such as restrained use of lawn fertilizer are addressed in conjunction with the project.

There will be short-term negative environmental concerns associated with construction, e.g., noise and dust, which can be averted by using best management practices.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 38

Applicant Name	Milk River Irrigation Project Joint Board of Control (JBOC)		
Project Name	St. Mary Canal, Halls Coulee Drop 3, Plunge Pool Concrete Repair		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	18,409	JBOC, In-Kind
	$	39,460	USBR, In-Kind
Total Project Cost	$	157,869	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

For almost 95 years, the St. Mary Diversion of the Milk River Project has served to augment the Milk River water supply. The St. Mary Diversion provides an important renewable resource to residents along the Milk River. The St. Mary Diversion was built by the U.S. Bureau of Reclamation (USBR) to provide supplemental irrigation water along the Milk River, but has evolved into a multi-use project. The St. Mary Diversion supplies water for 120,731 Milk River Irrigation Project acres, nine municipalities, and Bowdoin National Wildlife Refuge. It provides numerous other fish, wildlife, and recreation benefits.

The USBR operates and maintains the St. Mary Diversion. The distribution system is well beyond its design life and many of the appurtenant structures need to be repaired. Five concrete drop structures near the downstream end of the canal provide a combined drop of approximately 214 feet to the North Fork of the Milk River. The drops vary in length from 130 feet to 330 feet. Each drop consists of an inlet, a chute, and a plunge pool.

The drops are numbered 1 through 5 from upstream to downstream. Of the five drops, the plunge pools associated with Drops 2 and 3 are in the worst condition. The Drop 3 plunge pool is thought to be a slightly higher priority because there is a hole through the left wingwall.

Using Renewable Resource grant funds, the JBOC, in cooperation with the Montana Department of Natural Resources and Conservation (DNRC) and USBR, wishes to contract for planned repairs to the Drop 3 plunge pool.

Augmentation of the Milk River water supply is vital to conserving it and preserving the agricultural-based economy of Montana's Hi-Line.

Technical Assessment

Project Background

Of the five concrete drop structures located near the downstream end of the St. Mary Canal, Halls Coulee Drop 3 has been identified as being in very poor condition. JBOC proposes to repair the plunge pool associated with Drop 3 to dramatically lessen the likelihood of failure and subsequent shut-down of the St. Mary Canal which serves 120,731 acres over 666 farms. Alternatives considered were no action, total replacement, erecting steel plating over the existing concrete, and placing new concrete on or adjacent to existing concrete.

Technical Approach

The goal of the USBR's St. Mary system maintenance program is to keep the system functional. The goal of the proposed project is to reduce the potential for failure of Halls Coulee Drop 3 of the St. Mary Canal. The preferred alternative is to repair the drop structure by placing new concrete on or adjacent to the existing concrete. This alternative was selected for performance and minimal initial cost. No potentially adverse environmental impacts appear to be associated with the preferred alternative. Project implementation would begin in FY 2007 with construction completed in November 2008.

Specific tasks to be accomplished:

- Design and specification preparation;
- Concrete repair;
  a. Install new chute terminal wall; and
  b. Repair training walls, wingwalls, and floor.

Project Management

Project management will require coordination between JBOC and USBR. JBOC will review and approve all expenditures, and has retained a grant administrator. USBR will manage the construction portion of the project. Adequate staff members are in place to manage and administer this project. The project is ready for implementation at the end of the irrigation season after funding is made available. JBOC has and will continue to handle public input via monthly public meetings.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$6,100	**$6,100**
Professional & Technical	$0	$0	$0	**$0**
Construction	$100,000	$0	$51,769	**$151,769**
Total	**$100,000**	**$0**	**$57,869**	**$157,869**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Costs of the various alternatives are also provided. Justification for the proposed action as the least-cost alternative in the long run is provided and is reasonable.

JBOC represents eight Milk River Irrigation Project districts. Fees assessed vary by irrigation district. The proposed project will not impact these fees. JBOC and USBR appear able to provide the matching labor, materials, and cash listed in the budget. No back-up plan was provided in this budget.

Benefit Assessment

The primary benefit of this project is preservation of infrastructure needed to allow for continued beneficial use of water. If the proposed repair work is not done and the drop structure fails, the St. Mary Canal would need to be shutdown, impacting 120,731 acres over 666 farms as well as municipal, recreational, fish, wildlife, and industrial users within the Milk River project. In normal years, St. Mary accounts for 50% to 75% of the Milk River water supply. In dry years like 2001, St. Mary accounts for 97%.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 39

Applicant Name	Yellowstone Conservation District		
Project Name	Modeling Aquifer Responses to Urban Sprawl, West Billings Area		
Amount Requested	$	59,991	Grant
Other Funding Sources	$	6,000	Applicant, In-Kind
	$	12,109	MBMG, Indirect
Total Project Cost	$	78,100	
Amount Recommended	$	59,991	Grant

Project Abstract (Prepared and submitted by applicant)

The west Billings area in Yellowstone County has experienced tremendous growth and development. Most new homes are built in areas beyond municipal services and these residents depend on shallow aquifers as their only source of potable water. These aquifers are primarily recharged by irrigated agricultural practices; such agricultural land is disappearing into residential developments. The loss of aquifer recharge puts future groundwater availability and quality at risk.

The purpose of this project is to construct a calibrated digital groundwater model of the west Billings area in Yellowstone County. This model will provide a planning tool for managing the rapid growth and urbanization. Alternatives such as agricultural easements, green belts, and artificial recharge could potentially offset recharge losses. However, it is not known how much recharge is required to sustain the aquifers or the locations of critical recharge areas. Also, it is not known how fast and where groundwater declines will likely occur. A digital groundwater model can be constructed with the available data to answer these unknowns.

The groundwater model will be developed using the MODFLOW program and will be calibrated to real-world-measured groundwater level and streamflow conditions. This project builds upon a wealth of hydrogeologic information obtained by previous investigations and will use these data to test various development scenarios. Information provided by this project will be critical to planners, resource managers, and area residents. Public meetings will be conducted throughout the project to disseminate information and to gain input and identify concerns. A report and the model set-up data will be publicly available from the Montana Bureau of Mines and Geology (MBMG) Internet webpage.

Technical Assessment

The purpose of the project is to construct a calibrated groundwater flow model of the west Billings area shallow aquifer in Yellowstone County.

Project Background

The need for this project results from the increase in population and urbanization in recent years in the west Billings area within the Yellowstone River Valley. Most of the new residential properties in the area rely on water from aquifers created by surface water artificially recharging the underlying alluvium that typically was not water-bearing before irrigation seepage. These aquifers likely developed from the irrigation canal system built in the late 1890s. As these irrigated agricultural lands are converted to residential and commercial lots, irrigation recharge is reduced or lost. As of 2000, about one-half of the land in the west Billings area had been taken out of irrigated agriculture. A groundwater model specific to the area would provide a useful tool to assess rates of change and impacts under different growth scenarios. Several alternatives, including the no-action alternative, were considered; other funding sources for this project were considered but were not available.

Technical Approach

The preferred alternative is to construct a calibrated digital groundwater flow model of the west Billings area in Yellowstone County.

The main objectives of the project are:

- Build and calibrate a finite difference groundwater flow model under steady state and transient (time variable) conditions to match measured groundwater levels and measured streamflows;
- Use the groundwater flow model to test aquifer responses under various development scenarios; and
- Present project results to the public.

The preferred alternative was selected based upon results needed to obtain the described objectives. A groundwater flow model presents the best solution to integrate complex interactions with groundwater level responses, streamflow, ditch loss, recharge loss, and groundwater pumping. Groundwater recharge is a regional issue and it needs to be understood before further development occurs and groundwater management options are lost. The project provides an opportunity to understand the benefit of groundwater recharge from irrigation seepage and the impact a loss of this recharge will have on a developing residential community's groundwater supply.

Specific tasks to be accomplished:

- Construct and calibrate a groundwater flow model under steady state conditions;
- Calibrate the groundwater flow model under transient conditions;
- Conduct additional groundwater monitoring, including water level measurements and water quality analyses;
- Use the groundwater flow model to test aquifer responses under various development scenarios, including (1) minimum sustainable recharge (steady state); and (2) uniform 20-, 40-, and 80-year decline (transient); and
- Present the project results to the public following completion of the modeling scenarios. A report on the modeling results will also be prepared.

Project Management

The project will be administered by the Yellowstone Conservation District (CD) administrator. The MBMG will oversee and complete technical activities associated with this project. The Yellowstone CD staff, the MBMG staff, and other stakeholders will work together to ensure that appropriate data are used in the model and that the public has the opportunity to receive and review results. Roles of the project manager are not clearly defined in the grant application and need to be clarified before contracting. The project budget allows for funding to support financial and administrative aspects of the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$6,000	$0	$6,000	**$12,000**
Professional & Technical	$49,976	$0	$12,109	**$62,085**
Construction	$4,015	$0	$0	**$4,015**
Total	**$59,991**	**$0**	**$18,109**	**$78,100**

This budget appears sufficient to fund the proposed project, although a detailed breakdown of Yellowstone CD community support efforts should be provided before contracting. In general, material, labor, and equipment costs used to develop the budget appear adequate. Administration costs appear high and should be reassessed before contracting. Technical costs could be reduced if a graduate student completed the groundwater modeling project. No costs of the various alternatives are provided but justification for the proposed action as the least-cost alternative in the long run is provided and is reasonable.

The proposed groundwater flow modeling results will positively assist residents in the study area by providing a comprehensive planning tool for use in reaching informed land-use decisions for this portion of Yellowstone County. Groundwater users, as well as surface water rights holders, will directly and indirectly benefit from the decisions based on realistic and quality information developed as a result of this groundwater flow model.

Benefit Assessment

The primary benefits to these renewable resources (groundwater and surface water) include resource management and preservation. Secondary benefits include resource conservation and development. The proposed project would result in measurable benefits for management of groundwater resources. The amount of recharge needed to maintain the alluvial aquifer system under the west Billings area would be quantified. The information will be important to help manage land use, irrigation, development, and other water resource-related decisions.

Growth and development stresses on the shallow aquifer system are unknown in the study area. A dependable potable water source is needed to sustain growth. The groundwater flow model will provide information regarding the amount of recharge necessary to sustain the shallow aquifer system and the probable rate of decline if recharge is not maintained. A predictive tool to help manage water use decisions for the area will result from this groundwater model.

Lastly, preservation of the alluvial aquifers in the west Billings area is important in maintaining potable water supplies to a relatively large rural residential population. Data obtained from this project will assist in identifying conservation efforts to help maintain the aquifers, streams, and wetlands in the area.

All of the above benefits are relatively long-term and would be quantified through use of data collected as part of this project and construction of the groundwater flow model. Future groundwater beneficial-use permit application reviews will have sound site-specific hydrogeologic data available for use in making informed decisions as a result of this project.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The proposed project is a data collection and analysis effort. The beneficial results are primarily related to the collection of supplemental hydrogeologic data for use in developing the groundwater flow model for the west Billings area. The groundwater flow model will assist in planning use and development of the water resources in the watershed. The data will be used to evaluate the requirements for groundwater recharge in the study area needed to sustain the current residents and support growth and development.

Funding Recommendation

The DNRC recommends grant funding of $59,991 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 40

Applicant Name	Ravalli County		
Project Name	Improved Resource Protection, Floodplain Hazard Mapping, and Land-Use Planning for Ravalli County		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	9,268	Applicant
Total Project Cost	$	109,268	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

Ravalli County is one of the fastest-growing areas in Montana. To identify and protect sensitive resources, update and expand flood hazard mapping, and implement sections of the Growth Policy, the county needs more accurate elevation data in digital format. The county currently has 20- to 40-foot elevation contour intervals available only on paper. As a result, an unavoidable margin of error is introduced and significant additional staff time and project costs are generated.

Phase 1 obtains one-foot elevation contour intervals using Light Detection and Ranging (LIDAR) technology for approximately 228 square miles in the fastest-growing northern portion of Ravalli County. By providing this critical data, this project will help Ravalli County conserve, manage, and preserve important land, water, and wildlife resources.

The data would assist in the following areas:

- Location and maintenance of irrigation ditches;
- Groundwater monitoring (wastewater permits);
- Subdivision review–impacts to agriculture, irrigation systems, wildlife and habitat, surface/groundwater quality and quantity, surface water features (streams, rivers, and riparian areas), wetlands;
- Sensitive areas–agricultural lands, groundwater recharge areas, wetlands, riparian areas, wildlife habitat/corridors (including elk winter range);
- Accurate determination of riparian setback/buffer distances;
- Floodplain boundary delineations and violation determinations; and
- Road maintenance and drainage plans.

Beneficiaries would include:

- Landowners, residents;
- Local businesses–realtors/brokers, developers, surveyors, engineers, architects, builders, landscape designers, well drillers, hydrologists;
- Irrigation districts, surface water right holders;
- Visitors, recreationists, outfitters (hunting, fishing);
- Ravalli County boards–Commissioner, Planning, Health, Right to Farm and Ranch, Weed, Park;
- Ravalli County departments–Planning, Environmental Health, Floodplain, Roads and Bridges, Geographic Information System (GIS), Disaster and Emergency Services;
- Communities–Florence, Stevensville, Victor, Corvallis, Pinesdale, Hamilton, Darby, Conner, Sula; and

- Ravalli County Fish/Wildlife Association, Bitter Root Water Forum, Bitter Root Land Trust, Bitterroot Trout Unlimited, Montana Audubon, Montana Wetlands Legacy, Bitterrot Conservation District, Extension Services, Natural Resources Conservation Service (NRCS), Farm Service Agency (FSA).

Technical Assessment

Project Background

Ravalli County is one of the fastest growing counties in the state, with 10.7% population growth from 2000 to 2005. County planning staff and elected officials are struggling to cope with responsible growth management issues. Specifically, Ravalli County makes up the majority of the Bitterroot River Watershed. The rapid growth and outward expansion from the traditionally urbanized corridors to more rural settings, including development along the Bitterroot River corridor, is straining surrounding natural resources. The county planning staff needs better tools to accurately identify critical resource areas so that growth areas that minimize adverse environmental impacts can be established, and appropriate zoning and development regulations can be adopted.

Technical Approach

Several alternatives to the selected project were evaluated, including the “no action” alternative and three other alternatives to survey the northern portion of the county that is facing the greatest development pressure. The selected alternative is to perform a LIDAR survey to obtain survey data with horizontal and vertical accuracies of less than plus or minus one foot. The selected project provides the greatest benefit for the least cost, and will map approximately 228 square miles of northern Ravalli County.

Specific tasks to be accomplished:
- Select contractor;
- Write RFP;
- Evaluate proposals;
- Select contractor; and
- Contract with consulting firm.

LIDAR Flight Survey:
- Mobilization;
- Ground control;
- Data acquisition;
- Data processing; and
- Data delivery.

Project Management

The project manager for Ravalli County will be the county floodplain administrator, who will be supported by the GIS director, interim planning director, and the administrative director. The successful bidder will be responsible for establishing ground control, flying transects, data processing, and product delivery. After receipt of the mapping, the county planning staff will hold the requisite public meetings in the course of arriving at, and implementing, land-use planning decisions.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$2,402	$0	$4,424	**$6,826**
Professional & Technical	$97,598	$0	$4,844	**$102,442**
Construction	$0	$0	$0	**$0**
Total	**$100,000**	**$0**	**$9,268**	**$109,268**

The proposed budget appears sufficient and reasonable to fund the project. The applicant provided a detailed breakdown of costs for each task, based on a project specific bid. Justification for the proposed action as the least-cost alternative to accomplish the project goals is provided and is reasonable.

Benefit Assessment

The primary benefit to renewable resources is resource management. Acquisition of mapping data with horizontal and vertical accuracies of plus or minus one foot will significantly improve the ability of the county planning staff to accurately identify critical resource areas. The improved mapping will give the planning staff the ability to better enforce existing development rules, and the tool to develop new development guidelines to better protect natural resources.

Environmental Evaluation

The proposed action will have no short-term or long-term adverse environmental impacts. Conversely, the mapping generated through the proposed action will have significant long-term beneficial environmental impacts as a result of the improved ability to more accurately identify critical resource areas and develop and implement criteria to protect those resources.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 41

Applicant Name	North Valley County Water and Sewer District (NVCWSD)		
Project Name	North Valley County Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	11,250	Local Funds
	$	1,220,000	RD Loan
	$	750,000	TSEP Grant
	$	11,250	TSEP Planning Grant
Total Project Cost	$	2,092,500	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The community of St. Marie, formerly known as the old Glasgow Air Force Base, is 17 miles north of Glasgow. After the base closed, the property changed hands several times and eventually reverted to Valley County. The water and sewer infrastructure is maintained by the NVCWSD.

The district has been repairing mains, services, hydrants, and valves on an as-needed basis each year, realizing that some day a major reconstruction project would be needed to replace the 1950s vintage infrastructure.

Much of the old Air Force Base has been abandoned. No commercial buildings are occupied, and the community has evolved into a retirement community.

The district purchases water from the Montana Aviation Research Company (MARCO), a subsidiary of Boeing. The MARCO maintains the runways; uses the facility for airliner flight testing; and operates the water treatment plant,

which supplies treated Missouri River water to the MARCO and the St. Marie community. Flows to St. Marie are metered through a master meter.

The NVCWSD owns the water service up to and including the meters in the basements of the units.

The North Valley County water system has several deficiencies, as noted in the Preliminary Engineering Report (PER).

The distribution system was designed and constructed in the 1950s to accommodate an air force base. Many of the units were never occupied and the water distribution system was never tested under civilian usage and maintenance. The lines are not uniform. They range from six inches to 10 inches in diameter. Some are buried seven feet from the surface and some up to 17 feet from the surface. The mains were sized for the original air force base population of approximately 10,000, with a strong commercial economy.

The water mains are asbestos cement pipe (AC). The residential units are typically fed through a three-inch AC line tapped with up to four 0.75-inch copper services. There is only one shut off on the three-inch line which means up to four residents could be without water if only one 0.75-inch service required maintenance.

When the base closed, the as-builts of the infrastructure disappeared. Therefore, the district has had difficulties maintaining the water system when main sizes and service line locations are unknown.

Isolation of the service lines has been very difficult. For instance, one housing unit may have one occupant who is gone for the winter, whereas the other occupants use water year round. The service to the idle user cannot be shut off at the curb stop since one service feeds up to four occupants. During the winter, heat tape is used for these instances, but frequently the frigid temperatures cause the idle service to break and flood the basement.

For example, a service break occurred and the curb stop could not be located easily. The break was traced by monitoring the flow into the sanitary sewer lift station. By the time it was found, the St. Marie reservoir and one MARCO reservoir were emptied.

The following summarizes the deficiencies in the system:

- Difficulty of finding both small and large water breaks–22 breaks have occurred since 1993;
- Several hydrant and valve repairs–18 repairs since 1993;
- Several dozen service line breaks since 1992;
- Isolation difficulty on the mains and services; and
- Increased flows to the wastewater treatment pond due to basement flooding.

All customers are metered separately. The meters are in the basements of the units with a hard wire readout on the exterior of the building. The district has had difficulties accessing the meters for maintenance and to verify that they have not been bypassed.

There is no Supervisory Control and Data Acquisition (SCADA) system available to monitor elevation in the reservoirs. Elevation of the water in the reservoirs is measured at standard temperature and pressure with a pressure gauge.

The PER summarizes the recommended improvements and considers the cost to residents of St. Marie. If all work were to be completed in one phase, the cost would be prohibitive for the community. Therefore, the project engineer is recommending the district forego the new water meters and the SCADA system at this time and focus its attention on the distribution system. Other items are addressed in the Capital Improvements Plan.

Technical Assessment

Project Background

The district water system consists of 245 residential connections. The district purchases its water from the Montana Aviation Research Company, (MARCO), a subsidiary of Boeing. MARCO utilizes the facility for airliner flight-testing and operates the water treatment plant which supplies treated Missouri River water to the MARCO facilities and the

North Valley County Water and Sewer District. The district owns one water storage tank and shares two additional tanks with MARCO. The needs and problems identified in the application for the water system include frequent water main breaks, old fire hydrants and distribution system valves that require frequent repair, frequent water service line breaks, problems with isolating water mains and service mains for repair, and increased flows to the wastewater plant from service line breaks in basements. One service line break that occurred in 2003 emptied two of the system's storage tanks before repairs could be completed. Alternatives evaluated included the no action alternative, performing repairs on the system as needed, replacing all water main and water service infrastructure and replacing water main infrastructure (excluding water service lines) in areas with the most service connections. A thorough discussion of each alternative was provided along with schematic drawings showing the locations and extent of the replacement alternatives.

Technical Approach

The no action and the repair-as-needed alternatives were not selected because they would not eliminate the ongoing problems with the water system and meet the goals of the project. The goals of the project are to reduce system leakage, reduce the frequency of system repairs, and provide a reliable water distribution system network. The alternative selected is to replace water main infrastructure for the areas of the water system with the most service connections. The total replacement alternative was not selected because it was not economically feasible for the district. The selected alternative will provide a reliable system for the most populated areas of the district. Water service line replacement and new water service meters are included in the district's Capital Improvements Plan as future improvements.

Specific tasks to be accomplished:

- Replace approximately 6,000 feet of water main and related appurtenances in the area; and
- Replace approximately 18,000 feet of water main and related appurtenances in the Cape Hart area.

Project Management

The project management team consists of the district board, the district board president, the district secretary/auditor, a certified public accountant, the water system operator, the project engineer, and a funding administrator. The district's main point of contact will be the president of the board. The president of the board will be responsible for all official contacts with the DNRC and will be responsible for signing all administrative documents, designating the environmental certifying officer, and approving all contracts and pay requests. The proposed management team is sufficient for managing the proposed water system improvements project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$43,535	**$43,535**
Professional & Technical	$14,420	$0	$287,580	**$302,000**
Construction	$85,580	$0	$1,661,385	**$1,746,965**
Total	**$100,000**	**$0**	**$1,992,500**	**$2,092,500**

The budget form in the application is complete and reflects a total project cost of $2,092,500. The project cost includes construction of replacement water mains and related items. Detailed cost estimates were provided in the PER for the selected alternative to support the project cost. The cost estimates appear adequate for the proposed project. Costs for engineering, bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. The estimated costs for each line item in the budget form appear accurate for the scope of the proposed project, with one exception. Bond counsel costs may have been underestimated. However, this discrepancy is small ($5,000 to $10,000) and adequate contingency funds in the project could cover this item.

The proposed funding package consists of a TSEP grant ($750,000), an RRGL grant ($100,000), and an RD loan ($1,220,000). The status of the RRGL and TSEP grants will not be known until the ranking and review process is

complete and legislative approval is obtained in 2007. The annual projected debt service for the RD loan equates to $24.81 per month per user, which will raise the monthly water rate to $49.67. If the district is unsuccessful with its TSEP application, the monthly water rate will rise an additional $15 for an approximate total monthly rate per user of $65.00. The applicant states that if grant applications are unsuccessful, it will fund the entire project with the RD loan.

Benefit Assessment

The primary benefits to renewable resources are resource conservation, preservation, and management. Water conservation will occur through replacement of old leaking water mains. Replacement of the old distribution system piping will preserve the existing water system allowing it to stay in service. Replacement of the leaking infrastructure and new isolation valves in the distribution system will allow the district to better manage its water system.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts (noise, dust, storm water runoff, etc.) will be controlled through permitting and requirements in the construction specifications.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 42

Applicant Name	Sheridan, Town of		
Project Name	Sheridan Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	560,000	RD Grant
	$	1,140,000	RD Loan
	$	750,000	TSEP Grant
Total Project Cost	$	2,550,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

In June 2004, the Montana Department of Environmental Quality (DEQ) notified the Town of Sheridan that the community's wastewater treatment lagoon was seriously out of compliance with its Montana Pollutant Discharge Elimination System (MPDES) permit requirements. DEQ is requiring Sheridan to address all system deficiencies within a set time. Violations include overloading the lagoon, resulting in discharge of poorly treated wastewater to the Indian Creek drainage. In addition, the violation notice addressed embankment leakage.

Inadequate treatment and pond leakage is polluting the Indian Creek drainage with inadequately treated wastewater. Excessive groundwater infiltration into the collection system during the summer aggravates the treatment overloading problem by increasing the amount of water flowing into the lagoon. The current treatment facility poses a serious threat to public health and safety in addition to environmental pollution to several waterways. Nearby drinking water wells and downstream surface water supplies used for drinking water are the most threatened public services.

The proposed wastewater system improvement project will improve wastewater treatment, reduce the pollutant load to the receiving waters, and reduce infiltration of poorly treated wastewater to the groundwater. The new lagoon will

reduce pollution levels in the receiving water, maintain a beneficial reuse of the stabilized wastewater for irrigation, and meet all water-quality standards in the irrigation ditch system as well as in Indian Creek.

Land will be purchased for construction of a new mechanically aerated treatment lagoon. The landowner of the proposed lagoon site owns both wheel lines and center pivot spray irrigation systems. The owner intends to supplement the existing irrigation water supply with treated effluent from the lagoon with no impact to the lagoon operation.

The new treatment facility will greatly improve air and water quality by correcting the wastewater treatment deficiencies. Collection system improvements will reduce the amount of wastewater entering the lagoons and reduce groundwater pollution caused by exfiltration of sewage from the collection system during low groundwater. Reducing groundwater infiltration and the amount of wastewater treated will conserve energy by reducing demand on the aeration system blowers. The use of treated wastewater for irrigation maintains the current beneficial reuse of water.

Technical Assessment

Project Background

Sheridan is an incorporated town in southwestern Montana. Sheridan's current population is 672, with 397 service connections. The existing wastewater system was constructed in 1959 and consists of a gravity collection system (27,000 feet of sewer main piping) and a single-cell facultative lagoon. The lagoon discharges into a series of irrigation ditches that eventually discharge into Indian Creek.

The needs and problems identified in the application for the wastewater system include:

- DEQ notification that the town is in violation of its discharge permit;
- Seepage of inadequately treated sewage through the north lagoon embankment;
- Biological and hydraulic overloading of the treatment lagoon;
- Deterioration of the lagoon outlet weir structure, resulting in inaccurate discharge flow measurements;
- Excessive groundwater infiltration in areas of the collection system;
- The treatment lagoon failing to meet current design standards;
- The lagoon detention time is 21 days; DEQ requires a 180-day detention time for facultative lagoons; and
- Sludge build-up (1.4 feet) in the lagoon.

Treatment alternatives evaluated in detail to address the above needs and problems included a facultative lagoon system, storage and treatment lagoons with disposal by spray irrigation, and an aerated lagoon system. A number of other treatment alternatives were eliminated in the alternatives screening process due to cost or operational considerations including wetlands and mechanical treatment plants. The effect of reducing or not reducing the groundwater infiltration problem on each of the treatment alternatives was also evaluated. Collection system alternatives were evaluated in terms of reducing or eliminating the groundwater infiltration occurring in the 7,000 feet of sewer main with the greatest problem. Collection system alternatives evaluated in detail included replacement of the existing sewer main, slip lining the existing sewer main with HDPE pipe, fold and form rehabilitation (sewer main lining technology), and cured-in-place pipe (CIPP) rehabilitation (sewer main lining technology).

Technical Approach

The goals of the project include eliminating the discharge of improperly treated wastewater from the existing treatment lagoon, eliminating the lagoon dike seepage problem, eliminating a significant portion of the groundwater infiltration occurring in the collection system, and bringing the wastewater treatment system into compliance with current DEQ regulations and discharge permit requirements. The two alternatives selected to accomplish these goals include construction of a new aerated lagoon system for treatment and lining 7,000 feet of collection system using CIPP technology.

The aerated lagoon system was selected because it has the lowest capital cost, the lowest present worth, and requires the least amount of land. The new aerated lagoons will be designed to comply with DEQ regulations and discharge permit requirements. The CIPP collection system alternative was selected because it has the lowest capital cost and the lowest present worth of the alternatives evaluated. The CIPP lining technology allows the sewage collection

system to be rehabilitated with minimal excavation. It eliminates the expense of pavement replacement and street restoration, has minimal impact on traffic, and does not affect access to homes and businesses during construction. CIPP technology involves inserting a resin impregnated “sock” into a sewer main through an existing manhole. The sock is then expanded and cured using steam and hot water. The liner expands and seals to the inside of the sewer main. Lining the collection system will significantly reduce groundwater infiltration into the collection system. The reduction of groundwater infiltration will also reduce the size required for the aerated lagoon system and will improve treatment efficiency, thus ensuring regulatory compliance.

The proposed project will address all of the wastewater problems discussed above. The cost provided for dealing with the sludge in the existing lagoon and reclaiming the existing lagoon site may be low. The cost is based on air drying the sludge, leaving it in place, and then reclaiming the lagoon site. However, EPA and DEQ must approve this approach. DEQ usually does not allow the sludge to be left in place if the lagoon has leakage problems. If the sludge has to be removed from the lagoon and land applied, the cost could be significantly higher than the $30,000 estimated in the PER. Based on documentation provided in the PER, the existing lagoon contains 380,000 cubic yards of sludge. If the lagoon is drained and the sludge allowed to dry, approximately 40,000 cubic yards of sludge would have to be disposed of. Depending on the location of the sludge disposal site, sludge disposal costs range from $5 to $10 a yard ($200,000 to $400,000) to load, haul, and dispose of the sludge.

Based on input received from DEQ and information provided in the PER, it is possible that the selected treatment alternative (aerated lagoons) may not meet future discharge permit and regulatory requirements. Ammonia, nutrient (nitrogen and phosphorous), and fecal coliform limits may be included in future discharge permits for the town’s wastewater system. The proposed aerated lagoon system may not be able to meet these limits without adding additional storage, increasing the amount of effluent that is land applied and increasing the land application area. These regulatory requirements will not pose a problem as long as the town makes certain that sufficient land available is to add a storage lagoon and provide additional area for irrigation.

Specific tasks to be accomplished:

- Construction of a new three-cell aerated lagoon system with a total surface area of approximately four acres; and
- Line 7,000 feet of collection system piping, utilizing CIPP technology, to reduce groundwater infiltration.

Project Management

The project team consists of a project manager, project engineer, the town’s mayor, clerk-treasurer, legal counsel, and bond counsel. The project manager will assist the town with project start-up, maintain project files, verify that funding agency requirements are met, review pay requests and expenditures, monitor contractor compliance, serve as the primary liaison with the funding agencies, and serve as the town’s labor standards officer. The project engineer will be responsible for design, construction inspection, construction administration, conducting construction progress meetings, reviewing and approving contractor requests for payment, and keeping the town informed of the project’s progress. The mayor and town council will have ultimate authority and responsibility for the project. Sheridan’s clerk-treasurer will be responsible for management of project funds. The designated management team is sufficient for managing the proposed wastewater system improvements project. Depending on funding, design of the project improvements is scheduled to start in May 2007. Construction is scheduled to start in April 2008 and will be complete by June 2008. The schedule is feasible for the proposed improvements and is sufficiently detailed.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$2,000	$0	$48,000	**$50,000**
Professional & Technical	$25,000	$0	$430,000	**$455,000**
Construction	$73,000	$0	$1,972,000	**$2,045,000**
Total	**$100,000**	**$0**	**$2,450,000**	**$2,550,000**

The budget form in the application is complete and reflects a total project cost of $2,550,000. Detailed cost estimates were provided in the PER for the selected alternatives to support the project cost. The engineering cost estimates appear adequate for the proposed project. Costs for bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. The estimated costs for each line item in the budget form appear accurate for the scope of the proposed project.

The proposed funding package consists of a TSEP grant ($750,000), an RRGL grant ($100,000), an RD grant, ($560,000), and an RD loan ($1.14 million). None of the funding sources are committed. The status of the RRGL and TSEP grants will not be known until the ranking and review process is complete and legislative approval is obtained in FY 2007. An application has been submitted to USDA/RD for a grant and loan package. RD is optimistic that the town will receive the grant and loan package but a letter of committal has not yet been issued.

The annual projected debt service for the RD loan equates to $13.14 per month per user. The projected annual O&M cost for the proposed improvements is $11,558, which equates to $5.42 per month per EDU. The total projected monthly sewer rate is $22.61. If the town is not successful in obtaining grant funding, the monthly sewer rate would be $39 per month using an RD loan to finance the project. Several funding scenarios were evaluated in the PER using different combinations of loan and grant funding. Under the various scenarios, sewer rates ranged from $22.61 (using the proposed funding package) to $39.00 per month if the project is financed entirely with RD loan funds.

Benefit Assessment

The primary benefit to renewable resources is resource preservation. Currently, groundwater and surface water are contaminated with improperly treated wastewater. Leakage occurs through the dike of the town's wastewater lagoon, the lagoon does not meet the requirements of the discharge permit, and the sewage collection system leaks raw sewage and contaminates area groundwater. The proposed wastewater system improvements will provide a system that will meet discharge standards, preserve the water quality of the receiving stream, reduce the potential for raw sewage to leak from the collection system, preserve the quality of the surrounding groundwater, and eliminate leakage of sewage through the dike of the existing lagoon.

Environmental Evaluation

The applicant adequately addresses the environmental impacts associated with its proposed wastewater system improvements project. Short-term impacts associated with construction have been identified in the PER and environmental checklist. These include noise, traffic, dust, energy consumption, and storm water runoff. The PER and environmental checklist indicate that measures will be taken during construction of the project to mitigate these impacts through requirements in project specifications. No significant long-term adverse environmental impacts are associated with this project. Approximately 15 acres of land will be required to site the proposed aerated lagoon system. The overall environmental impacts associated with the project should be positive. The town will discharge a higher quality effluent, thus lowering impact to the receiving stream.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 43

Applicant Name	Neihart, Town of		
Project Name	Neihart Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	25,000	Applicant
	$	100,000	CDBG Grant
	$	223,000	TSEP Grant
Total Project Cost	$	448,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Town of Neihart provides domestic water for 95 residential and three commercial customers. The original 1890s era water system is being systematically brought up to current health and safety standards. Recent improvement projects include: 1980–100,000–gallon water tank, 1981–reservoir dam reconstruction, 1987–various water main replacements, 1996–surface water treatment facility, 1997–U.S. 89 water main replacement, and 2004–water meter installation. However, serious deficiencies remain in the water treatment and distribution systems.

The water distribution main, extending 4,200 linear feet from Neihart's surface water treatment plant to U.S. 89, consists of 113-year-old cast iron pipe with caulked lead joints that have numerous documented leaks. This main has had frequent breaks and associated health and safety problems. For example, the town was without water for two to four days when this main broke during a cold snap several years ago. Additionally, the main is now fully exposed where it crosses Belt Creek and is highly susceptible to freezing and flood damage. This main will be replaced and the Belt Creek crossing restored to natural conditions.

Neihart has been under either a boil order or a health advisory due to problems with water treatment since its surface water treatment plant was installed in 1996. A modification to the controls and chemical feed is proposed to help correct the treatment plant problems.

Neihart's water system is heavily in debt and has virtually no reserve fund. Over 60% of residents have low and moderate income levels (LMI); 22% are at poverty level. Part-time residents pay full-time monthly water bills, $40 per month, which exceeds the target rate for Neihart's water service by more than 75%. Because of these challenges, Neihart is requesting funding assistance from the Renewable Resource Grant and Loan Program (RRGL), Community Development Block Grant Program (CDBG), and Treasure State Endowment Program (TSEP) to complete the necessary improvements.

Technical Assessment

Project Background

The town of Neihart is in Cascade County, 60 miles southeast of Great Falls, on U.S. Highway 89. Neihart began as a mining town in the late 1800s. The original water system was installed in 1892. The town assumed ownership of the water system from the Montana Power Company in the 1950s. Several water system improvements have been completed over the years including water main replacements in 1987, construction of a surface water treatment plant in 1996, additional water main replacements in 1997, and the installation of water meters in 2004. The system currently serves 91-full time residents along with a seasonal population of 90 people.

Neihart gets its water supply from O'Brien and Shorty creeks which have their confluence at the 1 million-gallon (MG) raw water reservoir, adjacent to the conventional water treatment plant which was constructed in 1996. System operators have had difficulty operating the system, which has led to numerous boil orders, including one that lasted for most of the last three years. Since operation began, DEQ and other agencies have attempted to provide technical assistance to bring the treatment operation into compliance. The current system operator has adjusted

system processes so the plant operates as designed, with no finished water turbidity violations. It is assumed that sufficient flow and available water rights exist for this water supply to meet system needs during the planning period, though this information was not included in the PER.

The town has 40,000 gallons of finished water storage at the treatment plant. The distribution system is designed for a 1,000 gpm fire flow, but the system can only provide this flow for a maximum of 40 minutes at the current storage volume. A storage tank previously part of the water system has since been disconnected from the system and can be utilized to fill pumper trucks to supplement fire protection. This storage tank is filled with spring water.

The transmission main from the treatment plant to the distribution system is 113 years old and has exceeded its service life. The main has lead caulked joints and experiences significant leakage. The line does not have sufficient soil cover in many areas and is exposed in a creek crossing, which increases the potential for freezing. When this main is out of service for repairs, the entire system is without water.

Technical Approach

The existing transmission main from the plant to the distribution system will be replaced and installed with sufficient soil cover to prevent freezing.

Most problems with the treatment plant appear due to surface water quality swings from events such as heavy thunderstorms and sudden snowmelt. This results in turbidity violations in the finished water. The PER dismisses additional treatment processes that may provide better treatment with minimal analysis. The alternatives analysis seems to focus on replacing the existing chemical feed pump with a streaming current detector and ion paced chemical metering pump that would automatically adjust the polymer feed rate based on the finished water turbidity. While this may be an appropriate solution, it does not appear any other alternatives were seriously considered.

The addition of storage capacity to the system was mentioned and dismissed as not feasible. An alternatives analysis for providing additional finished water storage should have been completed.

The project is proposed to begin design during the summer 2007 and be completed by the end of 2008.

Specific tasks to be accomplished:

- Replace 4,000 lineal feet of transmission main from the plant to the distribution system; and
- Replace existing chemical feed pump with streaming current detector and ion paced chemical metering pump.

Project Management

The proposed project involves several funding agencies. The town will hire a project manager. The project manager will be responsible for keeping each funding agency informed of project progress. The project management plan outlines the duties for the project manager, engineer, mayor, clerk-treasurer, and the town council. This provides for a staff of specialists to perform duties important to the project within their areas of expertise. The project manager and town council will inform the public through regularly scheduled council meetings and monthly water bills.

The project management plan provides for thorough and well-organized contract management with regulatory and funding agencies, consultants, contractors, and other involved parties. Roles of the project manager are clearly defined in the grant application and are appropriate given the budget allocations and project approach. The project budget allows for funding to support the financial and administrative aspects of the project. The proposed project schedule anticipates completion within two years. The project will be ready for start-up of design once the town is confident grant funds will be awarded.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$28,000	**$28,000**
Professional & Technical	$0	$0	$73,000	**$73,000**
Construction	$100,000	$0	$247,000	**$347,000**
Total	**$100,000**	**$0**	**$348,000**	**$448,000**

The project budget is complete and includes adequate detail to show the proposed budget is likely sufficient to complete the proposed project. The budget only provides for a 4.5% contingency. Normally a minimum contingency of 10% is provided, with higher amounts often utilized on smaller projects such as this. As a result, sufficient funds may not be available should unforeseen circumstances arise. The applicant has applied for a TSEP grant for $223,000 a CDBG grant for $100,000, and an RRGL grant for $100,000. The applicant plans to utilize $25,000 in local funds for the remainder of the project budget. The applicant is eligible for TSEP and CDBG funding.

The applicant is a local government with the ability to collect charges for debt and operation. Current residential charges for water service are $40 per month. The projected residential rate will remain at $40 per month, and will affect 95 households. The town does not have a central sewer system. The monthly water rate of $40 exceeds the target rate by $16.97 per month (174% of the target rate).

Cost estimates were provided for the alternatives considered for each of the project components and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has resource conservation, management, and preservation benefits.

Resource conservation benefits include improved utilization efficiency of source water supplied to the town by replacing a 113-year old water line that leaks. The water system loses 75% of the water produced by the treatment plant, and the transmission main from the plant to the distribution system is the major contributor to this leakage. The line has insufficient soil cover in many areas and is exposed in a creek crossing, which increases the potential for freezing. When this main is out of service for repairs, the entire system is without water. Improvements at the treatment plant will likely ensure finished water meets the SDWA standards. These improvements will measurably improve the management of a renewable resource. The proposed project will preserve a water system that has been in existence for over a century, which will keep in existence the renewable resource benefits that exist today.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 44

Applicant Name	Greenfields Irrigation District		
Project Name	Muddy Creek Wastewater and Erosion Reduction		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	76,490	Applicant
	$	6,300	Sun River Watershed Group
Total Project Cost	$	182,790	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Muddy Creek Wastewater and Erosion Reduction Project will take approximately 30 cubic feet per second (7,200 acre-feet) of water currently wasted at two sites into Tank Coulee, tributary to Muddy Creek. After entering Muddy Creek from Greenfields Irrigation District (GID) drains, it will be pumped back into canals to be reused for irrigation. Flow fluctuations and tailwater is the key to reducing erosion in Muddy Creek. This flow reduction should help reduce Muddy Creek erosion by 30%, from 30,000 tons annually to 21,000, based on flow and sediment studies over the past five years. The bigger erosion effort by the Muddy Creek Task Force will actually reduce sediment loads by more than 50%, to 15,000 tons, when combined with the other Muddy Creek projects. Because of natural erosion, the remaining 15,000 tons is estimated to be the lowest possible sediment load, so this next set of projects should be the last of the major erosion control projects on Muddy Creek.

Technical Assessment

Project Background

The problem is twofold. First, unused irrigation water at the end of part of the system within the GID is sent into Tank Coulee, a tributary to Muddy Creek. From an agricultural standpoint, this irrigation water is wasted and could be put to beneficial use. Second, Muddy Creek exhibits substantial fluctuations of flow during the irrigation season (due to varying rates of irrigation return). Research has shown that this fluctuation is a leading cause of stream bank erosion in the Muddy Creek system, and that Tank Coulee is a significant contributor of sediment to Muddy Creek.

The goal of the proposed work is also twofold: first, to better utilize wasted irrigation return water and second, to reduce erosion in Muddy Creek. The applicant states that as a result of numerous studies conducted on Muddy Creek over the last three decades, the proposed project is the most cost-effective alternative available to reduce flows and erosion in Muddy Creek. As such, the only alternative considered involves installing a pump-back system to pump irrigation wastewater back into the irrigation network of the GID.

Technical Approach

The preferred alternative involves installation of two 50-horsepower electric pumps, each housed in separate concrete structures at two separate sites, and about 400 feet of 18-inch diameter discharge pipe from one drain to a canal. The specific goals of the project are to pump up to 15 cubic feet per second (about 6,800 gallons per minute) of irrigation wastewater back into the irrigation network at each of the two sites. Over the course of the irrigation season, up to 6,000 acre-feet of water could be pumped back and reused.

This project is the result of studies that have identified rapidly varying flows in Tank Coulee as a significant source of erosion and sediment to Muddy Creek. The application does not present consideration of more than one alternative. Options involving different pump capacities based on expected flow ranges and pump efficiencies were not analyzed. However, the applicant indicated that the two pump sites were selected because they met the criterion of a drain adjacent to a canal where electricity was immediately available (the latter factor was the most limiting).

The implementation schedule for the project consists of a 90-day construction period during fall 2007. The anticipated start and completion dates are August and October of 2007, respectively.

Specific tasks to be accomplished:

- Design pump houses and undertake an engineering analysis to select appropriate pump type;
- Advertise bids and award contract for supplying and installing pumps and pipe;
- Construct pump structure and lay pipe;
- Install and test pump system; and
- Monitor the pump system flow in Tank Coulee and water quality in Muddy Creek.

Project Management

The Greenfields Irrigation District will manage the project. The GID is well equipped to undertake the work. The GID manager will take the lead in project management, with administrative support from the GID accountant. The GID construction crew will undertake the construction. The roles of the project manager are defined in the grant application and are appropriate given the budget allocations and project components. The manager, accountant, and construction crew are qualified to complete the project. The Sun River Watershed Group coordinator will assist with grant oversight, bid preparation, and water quality and quantity monitoring.

The project budget has a relatively small allocation (less than 4%) for the administrative aspects of the project. Since the project administration will be undertaken by the GID, any additional management effort that may be required will be absorbed under normal GID operations. Planning for the proposed project has been completed. The project is ready to go to construction in fall 2007 and will be completed in approximately three months.

The project manager will work with members of the GID, Sun River Watershed Group, and the Muddy Creek Task Force to ensure that stakeholders are informed of the progress of the project. The applicant's public involvement plan does not provide details, other than the intention to interface with these stakeholders.

The applicant stated that engineering services were not scoped for design and construction oversight as part of the grant application, but that engineering could be incorporated into design and construction if the grant were awarded.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$6,800	**$6,800**
Professional & Technical	$0	$0	$4,800	**$4,800**
Construction	$100,000	$0	$71,190	**$171,190**
Total	**$100,000**	**$0**	**$82,790**	**$182,790**

This budget appears sufficient and reasonable to fund the proposed project. All grant monies would go toward purchasing materials; installation costs would be borne by the applicant. The applicant provided a basic itemization of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Since no alternatives were identified, no alternative costs were provided.

The applicant assesses fees at a flat rate to GID users. Fees will not be affected by the proposed project. The project has the potential to affect all 80,000 acres under management by the GID, although if applied according to the current allotment rate, the pumped water could irrigate up to 6,000 acres of crop land throughout the irrigation season. This acreage amount depends on the quantity of water actually pumped back into the system. The grant will be the sole source of funding for the project. Matching funds from the GID will provide for management and construction. The GID has an annual operating budget of almost $1.7 million and is financially able to provide matching funds. The applicant did not identify operation and maintenance costs (primarily electrical costs associated

with pumping). However, the GID currently runs three other pumps for the same purpose, and its operating history indicates that the value of the water outweighs the pumping costs.

Benefit Assessment

The primary benefit to renewable resources is the conservation of up to 6,000 acre-feet of diverted water for irrigating crop land within the GID. The pump-back system will improve the management and efficiency of the GID operations, especially when water availability is limited during drought periods. No additional crop land will be developed as a result of the implementation of this project. Based on several recent studies, the proposed project would result in a measurable reduction in sediment from Tank Coulee and a measurable reduction of erosion in Muddy Creek.

Environmental Evaluation

The applicant did not identify any adverse environmental impacts that may result from the proposed project. Implementation of this project will not cause short-term construction-related impacts. The proposed project will not change the rate or timing of water diverted from the Sun River to the GID; as such, it will not affect in-streamflows or aquatic habitat between the Pishkun Reservoir diversion and the confluence of Muddy Creek with the Sun River. In-streamflows may be affected in the Sun River between the confluence with Muddy Creek and the Missouri River. This condition is not documented and the degree of such effects is not known. Beneficial results are primarily related to improving the efficiency of water diverted from the Sun River and reducing the fluctuation of flows in Muddy Creek, which have been shown to cause erosion and sedimentation.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 45

Applicant Name	Bynum Teton County Water and Sewer District		
Project Name	A New Source of Drinking Water for Bynum		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	9,939	MBMG Indirect
Total Project Cost	$	109,939	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

Bynum is in north-central Montana about 10 miles north of Choteau. Residents of the community derive their water for domestic uses from individual wells in the sand and gravel aquifer underlying the community. However, the sand and gravel aquifer is less than 20 feet thick and susceptible to contamination; in the past, public water supply wells have periodically failed certain drinking water standards. Wells completed in the aquifer often dry up during the drought that has been experienced during the past several years. Drilling deeper wells is not an option because about 2,000 feet of shale lies below the sand and gravel aquifer; the shale generally yields very small quantities of poor-quality water. In addition, the average income in the community is $12,600, and any new expense for drilling or treatment would be an economic hardship for some residents. Because citizens were concerned about the safety and reliability of their water, they formed a water and sewer district in 2004 to begin considering options.

A potential new source of water for Bynum exists in the Virgelle Sandstone. The Virgelle Sandstone crops out in the hills west of Bynum and dips gently to the west. The Virgelle Sandstone yields adequate volumes of good quality water for Sunburst (northeast about 75 miles).

Recently, the Bynum Teton County Water and Sewer District retained the services of an engineering firm to develop a Preliminary Engineering Report (PER) presenting drinking water alternatives. The PER concluded that water from the Virgelle Sandstone would provide the safest source of water at the lowest cost. Other alternatives included tapping into Choteau's public water supply system or the shallow sand and gravel aquifer underlying the Burton Bench. Developing the sand and gravel of the Burton Bench was deemed risky because this water may be under the direct influence of surface water and susceptible to contamination. Tapping into Choteau's water system, 13 miles south, is too expensive.

The proposed project is Phase 1 of a multi-phased project. Phase 1 activities, for which $100,000 in grant funds is being sought, consist of a comprehensive investigation in which test wells will be drilled about four miles west of Bynum into the Virgelle Sandstone. The goal of this project is to find a safe and reliable source of drinking water in the Virgelle Sandstone for the residents of Bynum.

Specific objectives to achieve this goal are:

- Identify potential test-well sites;
- Install test wells and document lithology, well construction, and production information;
- Collect water samples for major ion and trace element analyses;
- Prepare a report of findings; and
- Submit a public drinking supply plan and specification application to the Montana Department of Environmental Quality (DEQ) and a water right application to the Montana Department of Natural Resources and Conservation (DNRC).

It is anticipated that the test wells will be drilled to a depth between 200 and 500 feet below land surface. The test wells will be used to locate a permeable section of the Virgelle Sandstone that will yield at least 30 gallons per minute and to determine the water quality in the formation.

The subsequent phase(s) of the project includes the design and specifications of production wells and the distribution system and is estimated to cost more than $1 million. The U.S. Bureau of Reclamation (USBR) has been identified as a potential source for funding a production well. Other sources of funding are identified in the PER.

The Montana Bureau of Mines and Geology (MBMG) will be the lead agency on the project. The Bynum Teton County Water and Sewer district will also participate.

Technical Assessment

Project Background

Currently, the residents of Bynum derive their water from individual wells in the sand and gravel aquifer underlying the community. However, the sand and gravel aquifer is less than 20 feet thick and susceptible to contamination; in the past, public water supply wells have periodically failed certain drinking water standards. Wells completed in the aquifer often dry up during the drought that has been experienced over the past several years. Drilling deeper wells is not an option, because about 2,000 feet of shale lies below the sand and gravel aquifer; and the shale yields very small quantities of poor-quality water. Because the citizens were concerned with the safety and reliability of their water, in 2004 they formed a water and sewer district to begin considering options for dealing with their drinking water supply. Alternatives considered included tapping into the City of Choteau public water system or drilling wells into the aquifer underlying the Burton Bench or the Virgelle Sandstone.

Technical Approach

A potential source of water for Bynum exists in the Virgelle Sandstone. The Bynum Teton County Water and Sewer District hired a consultant to develop a PER presenting drinking water alternatives. The PER concluded that water from the Virgelle Sandstone would provide the safest source of water at the lowest cost for the residents.

The proposed project is multi-phased. Phase 1 activities, for which $100,000 in grant funds is being sought, consist of a comprehensive investigation in which test wells will be drilled about four miles west of Bynum into the Virgelle

Sandstone. The goal of this project is to find a safe and reliable source of drinking water for the residents of Bynum.

Specific tasks to be accomplished:

- Identify potential test-well sites;
- Install test wells and document lithology, well construction, and production information;
- Collect water samples for major ion and trace element analyses;
- Prepare a report of findings; and
- Submit a public drinking supply plan and specification application to Montana Department of Environmental Quality, and a water right application to Montana Department of Natural Resources.

Two years are anticipated to complete this phase of the project.

Project Management

The president of the Bynum Teton County Water and Sewer District will manage the project. The district will contract with the Montana Bureau of Mines and Geology (MBMG) to provide hydrogeologic and technical expertise to complete Phase 1 of the project. The district will act as the lead fiscal agency, provide administrative support, and will act as project liaison with homeowners for dissemination of project status. All data will be managed by the MBMG and will be incorporated into its Groundwater Information Center (GWIC) public database. Quarterly reports will be submitted and a final report will be completed and available to the general public.

The MBMG and Bynum Teton County Water and Sewer District will seek public input throughout the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$1,000	$0	$0	**$1,000**
Professional & Technical	$22,750	$0	$9,939	**$32,689**
Construction	$76,250	$0	$0	**$76,250**
Total	**$100,000**	**$0**	**$9,939**	**$109,939**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, equipment, and operation and maintenance costs used to develop the budget appear reasonable and adequate. Costs of the other two alternatives were provided. Sixty-five Bynum residents will be served by this project. Phase 1 of the project will be completed with no fees assessed the citizens.

Benefit Assessment

The groundwater investigation will allow the Bynum Teton County Water and Sewer District to locate, control, and administer a groundwater source for beneficial use. The Virgelle Sandstone in the Bynum area has not been investigated as a public water supply source. Groundwater is derived from the Virgelle Sandstone for the town of Sunburst, and an individual homeowner about 10 miles southwest of Bynum. A successful drilling program that locates an adequate volume of good-quality water for Bynum may be the impetus for other communities along the Rocky Mountain Front to consider investigating the Virgelle Sandstone as a public water supply source.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Beneficial results are primarily related to the collection of hydrogeologic data for use in characterizing the Virgelle Sandstone as a groundwater source. Minimal short-term construction-related impacts (from installation of the test wells) will be controlled through permitting, landowner access permission, and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 46

Applicant Name	Whitefish, City of		
Project Name	Whitefish Wastewater System Improvements		
Amount Requested	$	100,000	RRGL Grant
Other Funding Sources	$	13,000	Applicant
	$	750,000	TSEP Grant
	$	911,480	WPC SRF Loan
Total Project Cost	$	1,774,480	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Whitefish Wastewater Treatment Facility was modified from “Phase Isolation” treatment to an aerated lagoon facility in 1978. In 1986, improvements were made to the Main Lift Station and a phosphorous-removal process was added downstream from the facility’s aerated lagoons. In 1995, the city received an Administrative Compliance Order (ACO) from the Montana Department of Environmental Quality (DEQ) in response to unpermitted overflows and bypasses during high flow events. Since that ACO, the city has implemented numerous projects to rectify problems with the wastewater infrastructure, including inflow mitigation, long-term solids handling, upgrading the aeration system, influent structure, Main Lift Station pump capacity, and control improvements. In 2005, the city initiated the process of updating its overall Utility Master Plan and identified a number of remaining needs throughout the wastewater system. In 2006, the city completed a Wastewater System Preliminary Engineering Report (PER) that further assesses the remaining needs, evaluates feasible alternatives, and recommends capital improvements to address those needs. The remaining wastewater infrastructure needs include Main Lift Station capacity enhancements, new pretreatment process, Main Lift Station wet well maintenance, phosphorous-removal process redundancy, rehabilitation of the existing flocculating clarifier, evaluation of the effluent diffuser, biosolids disposal permitting, and repair of eroded dikes in the aerated lagoons. The city anticipates funding through the Treasure State Endowment Program (TSEP) and the Renewable Resource Grant and Loan Program (RRGL) to implement specific recommendations from the 2006 Wastewater PER. These include pretreatment, Main Lift Station bypass capability, and phosphorous-removal redundancy.

The remaining problems at the Whitefish treatment facility are an inefficient and dangerous pretreatment process (manually cleaned bar screen in a confined space), the inability to bypass the Main Lift Station for necessary wet well cleaning and maintenance, and lack of redundancy in the phosphorous-removal process. Several other needs were identified in the 2006 wastewater PER as explained above, but the city has committed to implementing those capital improvements with its own resources due to time constraints.

The proposed project involves constructing a new building adjacent to the Main Lift Station that will house an automated rotary screen pretreatment process. The new equipment will remove solids and stringy materials from raw wastewater more efficiently and will de-water and containerize the materials for disposal. The new building will also include a “bypass basin” that will be plumbed for use in bypassing the Main Lift Station. When influent flows are diverted to the bypass basin, a trailer-mounted, high-volume, suction-lift pump would convey the wastewater directly to the force main downstream of the Main Lift Station and on to the wastewater plant for treatment. This will allow temporary bypassing of the Main Lift Station for needed inspection, cleaning, and maintenance of the wet well. Finally, the project will include construction of another flocculating clarifier, similar to the existing clarifier.

A second clarifier will provide redundancy in the phosphorous-removal process and allow the city to ensure continued compliance with its Montana Pollutant Discharge Elimination System (MPDES) permit. Redundant clarifiers will also allow the city to perform necessary maintenance and repairs on its existing clarifier without suspending phosphorous removal. Without the new clarifier, the existing clarifier cannot be taken out of service.

Technical Assessment

Project Background

The Whitefish wastewater treatment facilities consist of three partially mixed aerated lagoons for biological treatment with the discharge from the lagoon system flowing to a flocculating clarifier where alum and polymers are added to precipitate phosphorous. The treated effluent is discharged to the Whitefish River. The treatment system has consistently met the requirements of the MPDES permit regarding effluent quality.

In 1995, the city received an ACO from DEQ in response to un-permitted overflows and bypasses during high flow events. Since that ACO, the city has implemented numerous projects to rectify problems with the wastewater infrastructure, including inflow mitigation, long-term solids handling, upgrading the aeration system, influent structure, Main Lift Station pump capacity, and control improvements.

Technical Approach

In 2006, the city completed a wastewater PER that further assesses the remaining needs, evaluates feasible alternatives, and recommends capital improvements to address those needs. The remaining infrastructure needs include Main Lift Station capacity enhancements, new pretreatment process, Main Lift Station wet well maintenance, phosphorous-removal process redundancy, rehabilitation of the existing flocculating clarifier, evaluation of the effluent diffuser, biosolids disposal permitting, and repair of eroded dikes in the lagoons. While implementation of some of the improvements is not justified at this time due to regulatory unknowns, the city has committed to implementing several of the tasks utilizing its own resources.

Improvements to the screening process are included in the facilities plan to eliminate a safety hazard that the plant operator is exposed to when entering a confined space to clean the screen. The suggested clarifier improvements are needed to address an immediate need for system redundancy and to upgrade components of the clarifier, which are approaching the end of their useful design life. Failure of the existing clarifier would result in violations of water quality standards. The clarifier improvements would also allow capacity for the projected design flows.

Specific tasks to be accomplished:

- Construct a new building adjacent to the Main Lift Station to house an automated rotary screen;
- Provide a bypass basin for use in bypassing the Main Lift Station for needed inspection, cleaning, and maintenance of the wet well; and
- Construct a new flocculating clarifier.

It is proposed that the recommended plan be constructed between October 2007 and January 2008.

Project Management

The city has successfully administered previous grants and has the staff to manage the proposed improvements. The city engineer, city clerk, assistant city manager/finance director, and city attorney, as well as the contracted engineer, will manage the project. The city plans on scheduled project duties, deliverables, due dates, and routine progress reports. If needed, a consultant will be hired to provide guidance. An engineering consultant will perform design and construction management duties. A public meeting was conducted April 3, 2006, and other routine public meetings are planned to educate/inform the public about the project status. An implementation plan was provided detailing how the project will be completed by January 2008.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$123,000	**$123,000**
Professional & Technical	$60,685	$0	$195,055	**$255,740**
Construction	$39,315	$0	$1,356,425	**$1,395,740**
Total	**$100,000**	**$0**	**$1,674,480**	**$1,774,480**

The estimated budget appears complete and reasonable. The applicant provided a breakdown of costs for each of the alternatives including operation and maintenance requirements. The applicant is proposing a workable budget and funding sources to finance the project. Approximately 6,220 users will be impacted by improvements at the wastewater treatment system. The applicant anticipates a population of nearly 16,000 by the year 2025. It is estimated that sewer rates will increase from $29.96/month to $31.77/month.

Benefit Assessment

The primary purpose of the Whitefish wastewater treatment system is to protect the Flathead Lake drainage. Preservation of surface water in the Whitefish River and ultimately the Flathead Lake drainage is provided through the proposed improvements to the flocculating clarifier. These improvements will reduce the solids discharging into the Whitefish River and provide redundancy provisions that will avoid pollutant slug loads during times of failure of the existing clarifier. Enhanced pollutant removal through advanced clarification will directly benefit people who use Flathead Lake for environmental, commercial, and recreational purposes. Reduced pollutant loads from the wastewater treatment system will result in lower nutrient, the five day BOD, and TSS loads to the Whitefish River.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Environmental impacts on the Whitefish River and Flathead Lake Drainage will be beneficial.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 47

Applicant Name	Power Teton County Water and Sewer District (WSD)		
Project Name	Power Teton Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	101,429	ACOE 595 Grant
	$	604,285	TSEP Grant
Total Project Cost	$	805,714	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

Power is an unincorporated town in eastern Teton County, approximately 20 miles north of Great Falls. The district provides water service to 65 households and 14 commercial or institutional users including the school, post office, and the senior citizens center.

The community's original water treatment facility was outdated and did not provide treated water to meet the U.S. Environmental Protection Agency (EPA) regulatory requirements. A pilot study and a Preliminary Engineering Report (PER), including an alternatives analysis, led to an overall project consisting of three phases. Phase 1 included construction of a conventional package treatment plant, clearwell storage tank, backwash basin, and appurtenances. Phase 2 included construction of a presedimentation basin, an on-grade storage tank, and partial replacement of the distribution mains.

The district's remaining water mains, constructed in 1969, are at the end of their service life and do not provide adequate fire flows. Several dead ends remain in the system and prevent adequate flushing or cleaning, leading to the possibility of contamination of biofilms. The transmission main from the treatment plant is of unknown condition. Metal screws have been used to plug leaks in the main. It is suspected that this main is currently leaking, so the new treatment plant must process extra water.

The proposed Phase 3 project addresses the above deficiencies along with those not mentioned here. The project provides resource conservation, development, management, and preservation.

The community has been extremely supportive of this project. Each user is now paying an additional $61 in their monthly bill to repay loans incurred from Phases 1 and 2. The estimated cost to complete the project is $805,714.

Technical Assessment

Project Background

The Power Teton County WSD serves the community of Power, approximately 20 miles north of Great Falls. The water system serves 79 residential and commercial accounts. The original water system was not designed to provide fire protection and was experiencing regulatory issues with its existing water treatment plant. The district started a three-phase water system improvements project in 2004 to address these issues. The current system consists of a water treatment plant, a 250,000-gallon water storage tank, and the water distribution system. The water treatment plant, water storage tank, and a portion of the needed distribution system improvements were completed in FY 2004 and FY 2005. The water treatment plant was installed to meet U.S. Environmental Protection Agency (EPA) and Montana Department of Environmental Quality (DEQ) regulatory requirements. The new storage tank and distribution system improvements were completed to provide fire protection to the community's residents. The remaining needs and problems in the water system include undersized water mains that cannot meet fire flow requirements, dead-end mains that can result in bacterial growth, a leaking transmission main between the water treatment plant and distribution system, lack of security fencing around the water treatment plant presedimentation basin, and elevated levels of total organic carbon (TOC) in the treated drinking water. Elevated levels of TOC can result in the formation of trihalomethanes (THM) and halo-acetic acids (HAA) when chlorine is used as a disinfectant. THM and HAA are carcinogens. Also, pavement restoration was not completed from the FY 2004 and FY 2005 distribution system improvements, leaving a gravel surface above the water main trench. The proposed project is the last portion of a three-phase project. The alternatives evaluated to address these problems were limited to replacement of the undersized water mains, looping dead-end mains, replacement of previously removed pavement, and installation of charcoal filters in the treatment plant.

Technical Approach

The only alternative available to address the undersized, leaking, and dead-end water mains is to replace the existing problematic mains and install new mains to loop the dead-end mains. A computer model of the water system was used to size the new mains and to ensure the improvements will provide adequate fire protection. The plumbing was installed during construction of the water treatment plant in the FY 2004 and FY 2005 improvements to accommodate the charcoal filters. The plant also has provisions to adjust raw water pH, which will enhance coagulation and aid in TOC removal. Once the charcoal filters are installed, the water plant operator will have two processes to address the TOC problem. The technical approach used to design the water system improvements is sound.

Specific tasks to be accomplished:

- Install approximately 7,800 feet of water main and related appurtenances in the distribution system to replace undersized mains and loop dead-end mains;
- Replace approximately 9,250 feet of leaking transmission main between the water treatment plant and distribution system;
- Install charcoal filtration in the water treatment plant to remove elevated levels of TOC;
- Restore street pavement above water mains that were installed in Phase 1; and
- Install chain link security fencing around the water treatment plant presedimentation basin.

Project Management

The project team consists of the district board, the board president, the district water/sewer manager, the district secretary a project engineer, and the district attorney (county attorney). The president of the board and the district manager will have the ultimate authority for project management and expenditures. The district manager will be responsible for assuring compliance with funding agency requirements, and will act as the district's liaison to the funding agencies. The president of the board and the district manager will process pay requests and prepare drawdown requests to the funding agencies. The district manager will also monitor the contractor selection process and labor compliance. The district secretary will prepare checks and warrants for approved expenditures. The project engineer will be responsible for project design, construction administration, and construction inspection. The engineer will also review and approve the contractor's pay requests. The current project is the last phase of a three-phase project, so the proposed project team is experienced with requirements for project management. The implementation schedule provided in the application is complete and reasonable given the scope of the project. Depending on funding, design of the project will start in the third quarter of 2007. Construction will start in the second quarter of 2008 and end in the third quarter of 2008.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$25,500	**$25,500**
Professional & Technical	$0	$0	$121,689	**$121,689**
Construction	$100,000	$0	$558,525	**$658,525**
Total	**$100,000**	**$0**	**$705,714**	**$805,714**

The budget form in the application is complete and reflects a total project cost of $805,714. The project cost includes construction of water mains, installation of charcoal filters in the water treatment plant, pavement repair, and installation of fencing around the presedimentation basin. Detailed cost estimates were provided in the PER for the proposed improvements to support the project cost. The cost estimates appear adequate for the proposed project. Costs for engineering, bonding, loan reserves, audit fees, legal fees, and other administrative costs have been included. The estimated cost for each line item in the budget form appears accurate for the scope of the proposed project. The proposed funding package consists of a TSEP grant ($604,285), an RRGL grant ($100,000), and an ACOE 595 grant ($101,429). The status of the RRGL and TSEP grants will not be known until the ranking and review process is complete and legislative approval is obtained in FY 2007. The district is on the preliminary list for ACOE 595 funding. The district is seeking only $101,429 in ACOE 595 funds, so this funding source is a possibility, making the total funding plan feasible. The applicant indicates that if either the DNRC or ACOE 595 grant is not received, some of the least important distribution system improvements will be eliminated. If TSEP funds are not received, the district would probably reapply in the next funding cycle. The district does not meet the low-to moderate-income percentage criteria to apply for CDBG funds.

Benefit Assessment

The primary benefits to renewable resources are resource conservation, management, and preservation. Water conservation will occur through replacement of old leaking water mains. Replacement of the old distribution system piping will preserve the existing water system allowing it to stay in service and allowing better management.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts (noise, dust, storm water runoff, etc.) will be controlled through construction specifications.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 48

Applicant Name	Sidney Water Users Irrigation District (SWUID)		
Project Name	Sidney Water Users Increasing Irrigation Efficiency Phase 2		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	10,000	Applicant, Cash
	$	16,567	Applicant, In-Kind
	$	63,000	Landowners, Cash
	$	47,600	NRCS, In-Kind
Total Project Cost	$	237,167	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The proposal area covers 5,074 acres of irrigated land south of Sidney in Richland County. The SWUID diverts its irrigation water through three river pumping plants.

The SWUID has three primary concerns: water quantity, erosion and sedimentation, and reduction of noxious weeds. Current conditions on the project are 22.5% overall irrigation water-use efficiency, an estimated 10 tons of soil loss per acre from furrow erosion, and 300 acres of noxious weed infestation.

The goals of this project are to: increase overall system efficiency by 30% over a six-year period; reduce soil erosion to sustainable levels; and reduce noxious weed infestations by 75%. This specific project will increase the efficiency of the existing laterals from 22.5% to 73.5%.

Two additional socioeconomic goals are to improve the economic viability of the agriculture sector within SWUID and to either reduce power consumption by 18% or add acres irrigated within the district. Either, or a combination of the two, will result in the district becoming more productive and profitable.

The means to achieve the goals and objectives will be the most efficient and cost-effective method of addressing the problem developed through Natural Resources Conservation Service (NRCS) Resource Management System (RMS) planning for groups involved with laterals and on-farm planning. The district will do the construction to the extent possible.

A Renewable Resource grant is requested in the amount of $100,000 to replace an existing open canal system to Relift 1-2 with pipe from the No. 1 pumping plant. Flood irrigation on farms will be replaced with gated pipe and sprinklers through NRCS Environmental Quality Incentive Program (EQIP). In-kind contribution by the district will be $16,567 of the total cost of $237,167.

Technical Assessment

Project Background

The SWUID is along the east side of the Yellowstone River south and east of Sidney. The source of water is the Yellowstone River. This project is part of an overall effort to increase water-use efficiency throughout the district.

A section of main canal between a set of river pumps and canal relift pumps has excessive water seepage; it will be replaced with a pipeline and accompanying structures. The purpose is to improve water conveyance capacity and efficiency. Major alternatives considered ranged from redesigning the river pumps for increased flow rate to installation of different sizes of pipeline.

Technical Approach

The preferred alternative is to replace the above indicated section of main canal with 1,820 feet of 24-inch pipeline, along with installing a concrete water control structure at the relift pump site. Although the alternatives analysis wasn't very specific, it was generally stated that this alternative would provide the greatest net annual benefits by reducing annual system maintenance costs, reducing soils affected, reducing weed infestations, and controlling future power costs through elimination of the open canal. In addition, this alternative would provide improved water-use management. Except for short-term construction impacts, no adverse environmental impacts are indicated for this alternative. The project would commence in fall 2007 with completion by spring 2008.

Specific tasks to be accomplished:

- Install 24-inch PVC pipeline from 27-inch existing pipeline to relift pumps; and
- Install concrete water control structure at relift pump site.

Project Management

The NRCS has completed preliminary design. After preparation of bid documents, the project will be ready to proceed upon notice of award of this requested grant.

The SWUID manager will administer the grant contract. It is not clearly stated who will oversee and coordinate the overall project, although it probably will be the SWUID manager with technical assistance from NRCS. Public involvement is provided through SWUID meetings which are advertised and open to the public.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$2,050	**$2,050**
Professional & Technical	$0	$0	$47,600	**$47,600**
Construction	$100,000	$0	$87,517	**$187,517**
Total	**$100,000**	**$0**	**$137,167**	**$237,167**

The budget is sufficient to fund the proposed project, based on the cost estimates provided. Unit costs used to develop the cost of construction are reasonable and a 10% construction contingency is included. In general, justification for the proposed action as the most cost-effective approach is provided. Although the application indicates on-farm center pivots or gated pipe may be included in the project, personal communication with the SWUID contact indicated the project will involve only installation of the pipe and accompanying structure to replace a portion of the main canal.

Thirty irrigators purchase water from SWUID. A total of 5,074 acres is irrigated. This project will not increase the per-acre assessment.

Matching funds consisting of NRCS in-kind services, landowner funds, and SWUID funds appear secure.

Benefit Assessment

The main renewable resource benefit associated with this project will be improved water-use management through better conveyance efficiency. Nearly equal in benefit will be conservation of water through elimination of canal seepage in this section of the main canal. The application states a savings of water of 12.4 cfs or 24 acre-feet per 24 hours of pumping; the water saved could be used to develop additional irrigated acres.

Environmental Evaluation

Short-term negative impacts include dust, noise, and minor soil and vegetation disturbance during construction. Long-term positive impacts should occur from reduced water seepage from the system and weed infestation reduction by eliminating this portion of the canal.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 49

Applicant Name	Jordan, Town of		
Project Name	Jordan Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	30,000	Applicant / TSEP Planning Grant
	$	450,000	CDBG Grant
	$	700,000	TSEP Grant
	$	142,953	WPC SRF Loan
Total Project Cost	$	1,422,953	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Town of Jordan constructed the original sewer system in 1951; the existing lift station, force main, and lagoons were added in 1968. Deficiencies in the system were identified in the Preliminary Engineering Report (PER) prepared by a consulting engineer and adopted by the town.

Deficiencies noted by the PER in the sewer system in Jordan:

- The lagoons currently discharge treated wastewater to Big Dry Creek. The discharge permit includes both interim and final effluent limitations. The discharge must comply with the final effluent limitations by April 1, 2009, but the existing system cannot meet the final limits;
- Lagoon embankments are extensively eroded by wind and ice formations; and
- Control structures for routing wastewater between the cells are either significantly deteriorated or altogether inoperable. Original construction materials for the control structure are also not compliant with current regulations.

Deficiencies noted with the existing lift station include:

- An overflow in the wet well discharges raw sewage into Big Dry Creek during power outages in direct violation of the Montana Water Quality Act. Current regulations require removal of the overflow and installation of an emergency power source;
- The wet well/dry well design presents a health and safety hazard to town personnel by creating a confined space in the dry well; and
- The lift station is old and nearing the end of its useful life. The steel shell of the dry well is extensively corroded and may be structurally unsound. The dehumidifier no longer works, and the bubbler control system performs erratically.

Concerns noted in the collection system include:

- Large sections of the collection system were originally constructed with slopes and pipe diameters less than the minimums required by current regulations; and
- Town personnel have documented four damaged areas of the collection system during routine maintenance.

The PER summarizes recommended improvements to include:

- Reconfiguring and reconstructing the existing lagoon system into a three-cell facultative lagoon properly sized to enhance treatment;
- Continued discharge of treated wastewater into Big Dry Creek;
- Construction of a new lift station with submersible pumps and an above-ground control building; and
- Replacement of a damaged section of the collection system.

Technical Assessment

Project Background

The town of Jordan is the Garfield County seat in central eastern Montana, 84 miles northwest of Miles City, at the intersection of State highways 200 and 59. The original wastewater system was constructed in 1951, and the existing lift station, force main, and lagoon system were added in 1968. The system serves a population of 364; the new system will be designed for a population of 423.

Numerous deficiencies have been identified in the wastewater system. The lagoons currently discharge treated wastewater to Big Dry Creek. The current discharge permit includes both interim and final effluent limitations. The system must comply with the final effluent limitations by April 1, 2009, but the existing system cannot meet the final limits. In addition, the lagoon embankments have extensive erosion and the existing control structures are either significantly deteriorated or altogether inoperable.

The lift station is aged and nearing the end of its useful life. The steel shell of the dry well exhibits extensive corrosion and may be structurally unsound. The wet well/dry well design presents a health and safety hazard as it creates a confined space in the dry well. The lift station is not equipped with a back-up power supply and during power outages, raw sewage discharges from an overflow in the wet well into Big Dry Creek, which is a direct violation of the Montana Water Quality Act.

Large sections of the collection system have pipe diameters and slopes less than the minimums required by current regulations. In addition, four damaged areas of the collection system have been identified during routine maintenance.

Technical Approach

The project goal is to provide the community with a new wastewater treatment system that will provide service for 20 years. Repairs will be made to improve the integrity of the wastewater system. Five wastewater treatment alternatives capable of meeting treatment alternatives were evaluated; two discharging options and three non-discharging options. The preferred alternative is construction of a three-cell facultative lagoon system with

continued discharge to Big Dry Creek. Some concern exists about the ability of the proposed system to meet future ammonia limits, should final effluent limitations include an ammonia limit. There is insufficient effluent and in-stream water quality data to make this determination and additional monitoring is required.

A lift station will be constructed and will include a submersible pump system, a control building, and a stand-by generator for back-up power. Approximately 1,500 lineal feet of damaged clay tile pipe in the collection system will be replaced with polyvinyl chloride (PVC) pipe.

No significant environmental impacts were identified with any of the alternatives which were examined. The project is proposed to begin design during summer 2007 and be completed by the end of 2008.

Specific tasks to be accomplished:

- Construct a three-cell facultative lagoon system;
- Construct a lift station with submersible pumps and a new control building; and
- Replace 1,500 lineal feet of damaged collection system pipe.

Project Management

Since the proposed project involves several funding agencies the town will hire a project manager. The project manager will be responsible for keeping each funding agency informed of project progress. The project management plan outlines duties for the project manager, engineer, mayor, clerk-treasurer, and the town council. This provides for a staff of specialists to perform duties important to the project within their areas of expertise.

The project management plan makes no reference to any public involvement with the project.

The project management plan provides for thorough and well-organized contract management with regulatory and funding agencies, consultants, contractors, and other involved parties. Roles of the project manager are clearly defined in the grant application and are appropriate given the budget allocations and project approach. The project budget allows for funding to support the financial and administrative aspects of the project. The proposed project schedule anticipates completion within two years. The project will be ready for start-up of design once the town is confident grant funds will be awarded.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$43,365	**$43,365**
Professional & Technical	$0	$0	$223,816	**$223,816**
Construction	$100,000	$0	$1,055,772	**$1,155,772**
Total	**$100,000**	**$0**	**$1,322,953**	**$1,422,953**

The project budget is complete and includes adequate detail to show that the proposed budget is sufficient to complete the proposed project. The applicant has applied for a TSEP grant of $700,000 and a CDBG grant of $450,000. The applicant has already spent $30,000 on preliminary engineering and plans to obtain a WPC SRF loan of $142,953 for the remainder of the project budget. The applicant is eligible for TSEP, CDBG, and WPC SRF funding.

The applicant is a local government with the ability to collect charges for debt and operation. Current residential charges for wastewater service are $8.53 per month. The projected residential rate is $19.39 per month and will affect 214 households. The existing water rate is $27.07. This will result in a combined residential utility bill (water and sewer) of $46.46 which exceeds the target rate by $0.17 per month (104% of the target rate).

Cost estimates were provided for the alternatives considered for each of the project components and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has resource management and preservation benefits.

Management benefits include construction of a new lagoon system that will allow the town to effectively manage its wastewater by producing an effluent that meets permit limitations. Improvements to the lift station will eliminate the discharge of raw sewage to Big Dry Creek during power outages, again providing better management. Preservation benefits include eliminating raw sewage discharges into Big Dry Creek and providing for better quality wastewater effluent, which will protect and preserve Big Dry Creek and will also enhance water quality.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 50

Applicant Name	Beaverhead County		
Project Name	Blacktail Deer Creek Flood Mitigation Project		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	756,856	Applicant
	$	435,000	FEMA Pre-Disaster Mitigation Grant
Total Project Cost	$	1,291,856	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

This construction project is designed to replace two limited-capacity culvert crossings with open span bridges and to reconfigure the stream channel to minimize the impact of a 100-year flood event. The county has studied six alternatives and the resulting delineation of the 100-year floodplain for each.

The culverts have caused repeated flooding of a 13-block area along the urban reach of Blacktail Deer Creek. The flooding is caused by the limited capacity of the culvert crossings which have only 62 cubic feet per second (cfs) capacity, while peak discharges for the 10- 50- 100-, and 500-year flood flows are calculated at 352, 550, 740, and 940 cfs, respectively. The delineated floodplain contains over 50 residential and commercial structures threatened each time the creek leaves its banks, including a seed potato storage facility, a bulk fuel dealer, an apartment complex, motel, church, visitor center, mobile home park, and single-family residences.

The county commissioned a detailed step-backwater analysis for Blacktail Deer Creek using the U.S. Army Corps of Engineers (ACOE) Hydraulic Engineering Center-River Analysis System (HEC-RAS) computer program. The analysis modeled pre- and post-mitigation floodplain development alternatives to identify the most effective alternatives associated with the bridge replacement projects proposed as part of a Federal Emergency Management Agency (FEMA) grant application. The affected stream reach begins at Reeder Street and extends approximately 0.5 mile downstream to the elevated irrigation culvert crossing approximately 250 feet downstream of the Bannack

Street Bridge. The project will increase the channel's flood flow capacity, re-establish the stream gradient and sediment-carrying function, reduce the delineated floodplain, and eliminate the debris and ice-lodging problems associated with the culverts. The reconfigured stream channel will reduce potential flooding of residential and commercial development built subsequent to installation of the culverts in the 1950s.

Technical Assessment

Project Background

This project has been identified by the residents of Beaverhead County as the highest priority for the County Disaster Mitigation Plan completed in 2004. Chronic flooding along this urban reach of Blacktail Deer Creek has plagued a 13-block area containing single-family residences, apartment buildings, and commercial structures. When flooding occurs, the community musters emergency responders and hundreds of volunteers to sandbag/divert flood waters away from structures.

Flooding has been observed through this reach since the 1950s when two culverts were installed at the Reeder and Railroad streets crossings of Blacktail Deer Creek. The installed culverts have a calculated conveyance capacity of 62 cfs, significantly less than the 10-year peak flood magnitude of 352 cfs.

Technical Approach

Several alternatives to the selected project were evaluated, including the no action alternative and four other alternatives that considered diverting flood waters upstream of the flood prone area, and various configurations of culvert replacements and channel reconstruction. The selected alternative is the least-cost alternative that satisfies the project goal of increasing conveyance capacity and reducing the 100-year flood water surface elevation through the flood prone area. The present worth analysis for the selected alternative indicates a potential benefit/cost ratio of approximately 7.3.

The selected project will consist of improving the existing conveyance capacity of Blacktail Deer Creek by widening approximately 2,175 feet of the existing channel to a trapezoidal shape with a 15-foot bottom width, replace the existing culverts at the Railroad and Reeder streets crossings with 30-foot single-span bridges, and replace the existing foot bridges at the Brookside Apartments and Glendale Street with single-span foot bridges.

Implementation of the selected project is broken into two objectives, and each objective is further broken into specific tasks.

Specific tasks to be accomplished:
Objective 1:

- Replace the undersized culvert crossings at Reeder and Railroad streets with single-span bridges;
- Conduct public information meetings and public vote on bridge project;
- Request bids and select engineering and construction firms;
- Obtain necessary permits for working in the stream corridor;
- Consult with DFWP fisheries biologist to identify the best time for working in the creek;
- Remove accumulated sediment up-stream from the culverts to meet stream turbidity requirements;
- Remove existing culvert bridge structures;
- Excavate and construct cast-in-place abutments;
- Placement of prestressed concrete bridge, bridge rail, and riprap embankment;
- Construct asphalt street approach; and
- Revegetate roadside and stream bank.

Objective 2:

- Modify the Blacktail Deer Creek channel;
- Obtain necessary permits for working in the stream corridor;
- Obtain easements from adjoining property owners;
- Consult with the DFWP to identify the best time for working in the creek;

- Excavate the stream channel to engineered specifications;
- Place rock weirs in the streambed to direct flow and create riffle/pool fish habitat; and
- Revegetate the disturbed stream banks.

At this time, the hydraulic modeling that has been prepared and submitted has not addressed the potential for increased flooding downstream from the proposed crossings and channel improvements. Before issuance of a construction permit within the designated flood boundary, impacts, if any, to the downstream reach will have to be identified, quantified, and mitigated.

Furthermore, the project proposes to reconstruct approximately 2,175 feet of channel into a trapezoidal channel. A trapezoidal channel is not likely to be permitted in a stream identified as a fishery. The channel redesign should incorporate natural channel principles to recreate, as closely as possible, the dimension, pattern, and profile of the undisturbed reaches of Blacktail Deer Creek through the project area.

Project Management

Successful project implementation will be the responsibility of the county road manager, and supported by the Disaster and Emergency Services and grant coordination departments. The grant coordination department will coordinate administrative functions of the project, including grant administration and payment to contractors. The county road manager will supervise the bridge replacement engineering, bidding, and construction, as well as the engineering, bidding, and construction for the channel reconstruction. A design consultant will be selected in conformance with state laws and regulations to provide final design, construction documents, and construction administration services. The bridge replacement and channel reconstruction may be viewed and awarded as separate contracts for engineering and construction.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$108,866	**108,866**
Professional & Technical	$0	$0	$236,598	**$236,598**
Construction	$100,000	$0	$846,392	**$946,392**
Total	**$100,000**	**$0**	**$1,191,856**	**$1,291,856**

This project has recently received confirmation of a FEMA Pre-Disaster Mitigation (PDM) program grant. The budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Justification for the proposed action as the least-cost alternative to accomplish project goals is provided and is reasonable.

The estimated present worth benefit/cost ratio over 20 years for the proposed action is approximately 7.3. Residents and business owners within the flood prone area will directly benefit from the proposed action, and the entire county will realize the savings because flood response crews will be mobilized less frequently.

Benefit Assessment

The primary benefit to renewable resources is resource preservation. Reducing the frequency of flooding in the project area will preserve the water quality of Blacktail Deer Creek by reducing the frequency with which contaminants are introduced to the creek, as well as potentially save millions of dollars in property damage over a 20 years.

Environmental Evaluation

A Preliminary Draft Environmental Assessment was performed as part of the of the FEMA review process for eligibility to receive PDM program funds. The assessment concludes that the proposed action will not have a

long-term adverse effect on wetlands, vegetation, terrestrial wildlife, aquatic resources, or cultural resources. Short-term adverse environmental effects during construction are anticipated, but will be mitigated through compliance with appropriate permit requirements.

Before implementation of the proposed action, a detailed assessment of the potential to create flooding downstream of the project area, due to increased flood conveyance capacity through the project area, must be completed. Also, the environmental effects of the proposed trapezoidal channel geometry have not been evaluated. The necessary permits must be obtained if the plan moves forward.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 51

Applicant Name	Seeley Lake Missoula County Water District		
Project Name	Seeley Lake Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	1,000,000	ACOE 595/STAG Grant
	$	3,000	District Funds
	$	1,980,500	RD Loan
	$	750,000	TSEP Grant
Total Project Cost	$	3,833,500	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Seeley Lake Water District water system is currently grossly inadequate to either provide for an acceptable level of fire protection to the community or maintain adequate pressures during high water demands. The inability to suppress a fire poses a substantial risk of loss, not only to physical structures within the community but also to the national forest resources surrounding and identifying this resort community. Estimated available fire flows to the community are as low as 200 gallons per minute (gpm) in many areas of the system with both commercial structures and schools, where the available fire flows should be in excess of 1,500 gpm. A major fire event resulting from the inability to suppress even a minor structure fire would prove catastrophic to the community both environmentally and economically, as this community relies on the forest and water resources for its commercial and recreational livelihood.

The proposed project will include a 500,000-gallon water storage tank, a high service pump station, replacement of approximately 12,000 feet of small-diameter transmission main, approximately 3,000 feet of distribution system mains, and modifications to the disinfection process to facilitate compliance with the Disinfectants/Disinfection By-Product Rule.

System improvements will provide for adequate system pressures and fire flows for existing customers, provide for expansion of the customer base, and allow more efficient and maximum use of available surface water. The project will provide both an expanded benefit and also enhance the existing benefit through development of the infrastructure necessary to effectively manage and deliver the district's water resources. The project will further improve management of the district's water resources through new telemetry and automation equipment and additional water-metering equipment to accurately account for the treated water production rates.

Technical Assessment

Project Background

The Seeley Lake-Missoula County Water District operates and maintains a centralized drinking water system serving approximately 1,190 residents (480 residences and several businesses). The original water system was installed in the early 1960s and the district was incorporated in 1965. The district constructed a new water treatment plant in 1999 and has been vigilant in upkeep and improvement of the system to address public health threats and implement standard technologies. The system consists of a raw water intake and pump station at Seeley Lake, transmission main to the direct-filtration and disinfection plant, wetwell storage, and a distribution system. Users on the system complain of low pressures and lack of flow during high-demand conditions. Fire flows appear inadequate to meet Independent System Operator (ISO) recommendations. The treatment facility utilizes chlorine disinfection which has resulted in the formation of certain disinfection byproducts or DBPs (halo-acetic acids). The concentrations of these DBPs frequently exceed the EPA's established Maximum Contaminant Level (MCL) and must be addressed.

Technical Approach

The project goal is to address the storage and pressure problems by constructing a 500,000-gallon storage tank and booster station at the treatment plant, as well as replacing approximately 15,000 lineal feet of water main within the distribution system. The district anticipates making modifications to its disinfection system to reduce DBPs through use of chloramines.

The alternative evaluation consists primarily of various supply options, storage options (elevated tank, on-grade tank, booster pumps, concrete vs. steel, various locations) and distribution and treatment options (ammonia-feed, ozone, UV, pH adjustment, etc.). The no action alternative was considered and rejected for all but the supply issues. The recommended alternative consists of constructing a 500,000-gallon concrete storage tank, approximately 15,000 lineal feet of water main, high service booster pump station, modified chemical-feed systems at the raw-water pump station, and the treatment plant. Environmental impacts will generally be short-term construction-related. The applicant anticipates that the project will be designed in fall 2007, bid in early spring 2008, and be constructed during the 2008 season.

Specific tasks to be accomplished:

- Construct 500,000-gallon concrete storage tank, booster pump station, telemetry, and associated piping;
- Replace approximately 15,000 lineal feet of undersized transmission and distribution mains with new pipe; and
- Implement chloramine disinfection process at treatment plant.

Project Management

The proposed project management plan identifies adequate and capable staff to successfully administer and manage the proposed project from planning through completion and close-out. The applicant has discussed a continuing public involvement program to complement the existing programs. The project management plan provides for professional management of agreements and contracts associated with the proposed project, and the budget appears sufficient to accommodate proper funding and technical oversight.

The project planning has been completed and the project appears to be ready for design in 2007 and ultimate completion within two years.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$63,500	**$63,500**
Professional & Technical	$28,000	$0	$550,000	**$578,000**
Construction	$72,000	$0	$3,120,000	**$3,192,000**
Total	**$100,000**	**$0**	**$3,733,500**	**$3,833,500**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a fairly detailed breakdown of unit construction costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Less than 0.5% of the project costs are for administration of funding programs which appears somewhat low, but acceptable.

The district's funding strategy appears reasonable with TSEP, ACOE 595, or STAG and RD loan funds in addition to the DNRC grant request. Other funding programs were contacted and applications made in accordance with the district's schedule. The anticipated ACOE 595 grant ($1M) may be optimistic based on conversations with program personnel. However, the applicant has offered a back-up plan with STAG funding. The Seeley Lake water project is not on the anticipated funding list for 2006 ACOE 595 or STAG.

Benefit Assessment

Primary benefits to renewable resources will be conservation through reduction of leakage from the district's water mains, increased management capability in delivering fire flows, and energy conservation through reduced frictional losses.

Environmental Evaluation

Possible environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts are expected. Minimal short-term, construction-related impacts will be controlled through proper construction observation and control.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 52

Applicant Name	Manhattan, Town of	
Project Name	Manhattan Water System Improvements	
Amount Requested	$ 100,000	DNRC Grant
Other Funding Sources	$ 1,802,000	DW SRF Loan
	$ 750,000	TSEP Grant
Total Project Cost	$ 2,652,000	
Amount Recommended	$ 100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Town of Manhattan's water system dates to 1912 with the installation of asbestos cement and wood stave piping to supply water to the town. Upgrades to the system include wells installed in 1956, 1965, and 2001, as well as replacing wood stave piping and certain sections of asbestos cement piping with polyvinyl chloride (PVC) pipe.

Today the water system falls below standards established by the state for public water systems. The system has restrictions in water flow and no storage capacity, creating inadequate fire flows to the school and business district. The system is susceptible to viral and bacterial contamination created by lack of backflow prevention. Currently, the absence of water meters at individual services creates a strain on the system due to excessive usage. Dependence on manual control of the system is also draining on the supply source and a serious safety concern when the operator is absent or otherwise unable to operate the system. Alternatives were considered and compared to determine the best overall solution for Manhattan.

The preferred group of alternatives includes:

- Installation of two new storage tanks, one paid for directly by development impact fees and the other included as part of the project in the Preliminary Engineering Report (PER);
- Installation of back-up power with automatic transfer capabilities at each source;
- Installation of a telemetry system for the entire water system;
- Construction of a fence around the chlorination house; and
- Installation of water meters with backflow prevention devices on all services.

Improvements to Manhattan's water system will benefit and protect the town and its water supply. Installing backflow prevention devices on each service will protect the system from backflow contamination. Water meters will contribute to water conservation and identification of leaks throughout the distribution system. Addition of water tanks and telemetry will give the system reliability and increased flows to provide safe, adequate fire protection to the whole town, especially to the school and business district.

Technical Assessment

Project Background

Manhattan's original water system dates to 1912. The original system consisted of a developed spring 3.5 miles south of town and wood stave transmission and distribution system piping. The system has had numerous upgrades and improvements.

The current water supply consists of four water supply wells and the spring. A well recently completed in an adjacent subdivision will be added to the system as a condition of the subdivision approval. The combined water supply capacity will be 2,500 gpm once the subdivision well is added. With the implementation of water meters, the water supply is of good quality and sufficient quantity to meet the community's needs through the 20-year planning period. The community has a very high usage rate during summer. Implementation of meters will reduce usage during the summer and ensure the water supply is adequate for peak usage throughout the 20-year planning period. Some of the groundwater wells do not have back-up power. This compromises the ability of the system to deliver water during power outages. The proposed project includes installation of back-up power for all of the water supply wells.

The town currently has no storage capacity and a system of this size must have water storage to meet DEQ requirements. In addition, hydraulic analysis of the distribution system demonstrates that the current system does not meet fire flow requirements needed for the school and the business district. Two eight-inch pipes cross the railroad tracks and connect the southern portion of the system (where most of the supply is located) and the northern portion (where the school and business district are located). The existing piping crossing the railroad is inadequate to deliver the needed fire flows north of the tracks. The engineering report examines several alternatives for addressing inadequate fire flow and inadequate water storage.

Since the system has no storage, it is highly susceptible to backflow contamination due to substandard pressures within the mains particularly during a water main break.

Technical Approach

The applicant proposes installation of water meters for each service to reduce water usage within the system. A backflow preventer will be installed at each service in conjunction with the meter installation to protect water quality within the distribution system. Back-up power will be installed for each of the wells which do not currently have it. This will greatly improve the reliability and redundancy of the water supply.

The applicant examined several alternatives for addressing inadequate fire flow and storage. The selected alternative includes installation of two 250,000-gallon tanks. One tank will be located south of town at sufficient elevation where it will provide adequate pressure installed on-grade. The other tank will be an elevated tank constructed north of town. The alternative was preferred because it addresses both storage and fire flow needs without major distribution system improvements. This alternative is the most cost-effective approach to the community's storage and fire flow needs.

No significant environmental impacts were identified with any of the examined alternatives. The project is proposed to begin design during summer 2007 and be completed by the end of 2008.

Specific tasks to be completed include:

- Construction of a 250,000-gallon water tank;
- Installation of a telemetry control system;
- Installation of back-up power for each of the water wells;
- Installation of water meters and backflow preventers at each service; and
- Construction of a security fence around the chlorination house.

Project Management

The proposed project involves several agencies, and the town has hired an engineer as the project manager. The project manager will keep each funding agency informed of project progress. The project management plan outlines the duties for the project manager, engineer, attorney, bond counsel, clerk-treasurer, town council, and mayor. This provides for a staff of specialists to perform duties important to the project within their areas of expertise. The project manager and town council will inform the public through regularly scheduled council meetings.

The project management plan provides for thorough and well-organized contract management with regulatory and funding agencies, consultants, contractors, and other involved parties. Roles of the project manager are clearly defined in the grant application and are appropriate given the budget allocations and project approach. The project budget allows for funding to support the financial and administrative aspects of the project.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$33,500	**$33,500**
Professional & Technical	$0	$0	$346,500	**$346,500**
Construction	$100,000	$0	$2,172,000	**$2,272,000**
Total	**$100,000**	**$0**	**$2,552,000**	**$2,652,000**

The project budget is complete and includes adequate detail to show that the proposed budget is sufficient to complete the proposed project. The applicant has applied for a TSEP grant in the amount of $750,000. The applicant plans to obtain DW SRF loan funding of $1,802,000 for the remainder of the project budget.

The applicant is a local government with the ability to collect charges for debt and operation. Current residential charges for water service are $30.42 per month. The projected residential water rate is $44.94 per month, and will affect 280 households. This will result in a residential utility bill (water and sewer) of $59.00, which exceeds the target rate by $7.03.

Cost estimates were provided for options considered for each of the project components and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Material, labor, and equipment costs used to develop the budget appear reasonable and adequate.

Benefit Assessment

The project has resource conservation, management, and preservation benefits.

Resource conservation benefits include the installation of water meters which will reduce usage and conserve groundwater resources. Management benefits include installation of telemetry and water meters, which will improve the town's ability to control and administer the renewable resource. Preservation benefits include installation of backflow preventers at each service which will protect water quality within the distribution system.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 53

Applicant Name	Lewis and Clark County		
Project Name	Lewis and Clark Fairgrounds, Dunbar Area Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	43,982	AGC Laborers Training Private Funds
	$	85,216	CDBG Grant
	$	404,390	DW SRF Loan
	$	174,760	Mill Levy (Tax Revenue)
	$	596,420	TSEP Grant
Total Project Cost	$	1,404,768	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Lewis and Clark Fairgrounds/Dunbar Area Infrastructure Study (2004) analyzed existing infrastructure and defined potential solutions to address the growing concern for aging and inadequate water and wastewater systems. This study presented a plan for water and wastewater improvements in the area that includes the Lewis and Clark Fairgrounds, the Woodlawn Park Addition, and the Associated General Contractors (AGC) Training Facility. A number of problems have been identified including failing septic systems, inadequate fire flows, and unacceptable nitrate levels in water wells. Construction of wastewater improvements to the area (Phase 1 of the project) is under way. Funding for this phase is through the Treasure State Endowment Program (TSEP) and State and Tribal Assistance Grant (STAG), State Revolving Fund (SRF) loans, fairgrounds mill levy, a rural improvement district formed in the Woodlawn Park Addition, and through private funds.

The Lewis and Clark Fairgrounds/Dunbar Area Water System Upgrade Preliminary Engineering Report (PER) updates the water improvements portion (Phase 2 of the project) of the infrastructure study.

The following conclusions were drawn in the PER:

- Wells in the Woodlawn Park Addition and the AGC Training Facility are at risk for contamination. Failing septic systems are one of several contributing factors;
- The fairgrounds water system does not provide adequate fire flows for protection of the facility;
- Lack of a central water system within the Woodlawn area and AGC property reduces the fire-fighting capabilities of local fire departments;
- Growth potential for Woodlawn Park Addition, the AGC Training Facility, and the fairgrounds is all limited due to the current water infrastructure; and
- Proximity of the study area to the city of Helena water system makes improvements to the infrastructure relatively simple and cost effective.

Proposed improvements would provide improved water quality and quantity and would allow for future economic growth of the Lewis and Clark Fairgrounds/Dunbar area.

Technical Assessment

Project Background

The project area is comprised of the Lewis and Clark County Fairgrounds, the Woodlawn Park Addition, and the AGC Training Facility. The Fairgrounds is served by city water, the Woodlawn Park Addition consists of 52 residential and commercial properties that rely on individual water wells, and the AGC Training Facility is served by a public water supply well. A number of problems have been identified, including failing septic systems, inadequate fire flows, and unacceptable nitrate levels in water wells. Construction of wastewater improvements in the area are already under way.

Public health issues regarding water quality are the driving factors in choosing the action alternative of connecting or extending the existing city of Helena public water system.

Technical Approach

The preferred alternative consists of connecting to the city of Helena water system to provide adequate fire flows and improved water quality to the project area. The connection to the public water supply serves the purpose of improving human health and safety in the project area, as well as providing opportunity for expansion of the Fairgrounds and other businesses to better serve the community.

Specific tasks to be accomplished:

- Construct a 12-inch water line that connects the existing system on the east side of the Fairgrounds to the Northgate Meadows Development water main on Green Meadow Drive;
- Construct an eight-inch water main to service the Fairgrounds campground area, north barn area, and rodeo grounds;
- Construct eight-inch water mains within the Woodlawn Park Addition and connect these mains to the city mains along Green Meadow Drive and Custer Avenue; and
- Construct a water service line to the AGC facility and connect to the existing city water main that services the Fairgrounds.

The project is planned for construction starting in late 2007 through summer of 2008.

Project Management

Lewis and Clark County is working in coordination with the city of Helena to provide water improvements to the Fairgrounds/Dunbar area. A new ordinance allows services to be provided by the city to property that lies within the county with an agreement for future annexation.

Lewis and Clark County will provide a project manager/grant coordinator, finance director, and legal counsel to manage and administer the proposed project. In addition, the manager of the AGC facility will oversee and provide services during the water upgrade project. The project budget allows for funding financial and administrative aspects of the project.

Five public meetings have been conducted to inform and receive feedback from area residents and others interested. Notable feedback from the meetings included support for the project. The county and city plan to continue this method of public involvement throughout project implementation.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$22,132	**$22,132**
Professional & Technical	$49,500	$0	$243,797	**$293,297**
Construction	$50,500	$0	$1,038,839	**$1,089,339**
Total	**$100,000**	**$0**	**$1,304,768**	**$1,404,768**

This budget was incomplete; it did not include a reserve fund as required for the SRF loan. With the exception of this omission, the budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. The proposed sources of funding include an RRGL grant, TSEP grant, CDBG grant, DW SRF loan, and local funds provided by the AGC Training Facility. A mill levy was passed in the county and an RID was created in the Woodlawn Park Addition to pay for the loan and operation and maintenance. The project will benefit approximately 40 households and 14 businesses. Current assessments in the Woodlawn Park Addition and AGC facility are estimated to be approximately $10/month for operation and maintenance of onsite wells. The monthly RID payment and water bill will increase to a total of approximately $40.58/month per residential lot. The increased monthly bill for the AGC facility is estimated at $70.47/month. The Fairgrounds is currently served by the public water system and increases will probably occur as new facilities are put into operation and additional usage realized.

Benefit Assessment

The primary benefit to renewable resources is resource management. The city will manage the supply of water to the existing and new connections through reliable operation, maintenance, and sufficient supply. The elimination of individual wells will decrease drawdown in the aquifer and potentially increase the quantity of water surfacing in the area. This surface water would exit the project area primarily via the unnamed creek generated by Crystal Springs, with a minor contribution to Tenmile Creek. The increased supply of groundwater would sustain wetlands in and adjacent to the project areas. However, public health issues regarding water quality are the driving factors in choosing to provide water system improvements to the Woodlawn Park Addition and AGC Training Facility. By replacing drinking water wells with a connection to the city water system, the potential for contamination of wells from aging septic systems or other sources is eliminated. The public connection will also provide improved fire-fighting capabilities through installation of hydrants and adequate fire flows.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The proposed project would directly and primarily impact developed areas. Water mains would be placed within street or alley easements. The resources indirectly impacted would be water and wetlands. These impacts would be positive (i.e., water quality and quantity).

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 54

Applicant Name	Columbia Falls, City of		
Project Name	Columbia Falls Wastewater System Improvements		
Amount Requested	$	100,000	Grant
	$	954,000	Applicant
	$	1,000,000	STAG Grant
	$	750,000	TSEP Grant
Other Funding Sources	$	1,106,000	WPC SRF Loan
Total Project Cost	$	3,910,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The City of Columbia Falls proposes a two-phase approach to upgrade and expand its wastewater treatment plant. Phase 1 improvements will mainly replace equipment and structures beyond their useful life, improve existing processes to meet regulatory changes, and provide a capacity and service life to 2025 or beyond. The total proposed cost for these improvements is $3.9 million. Phase 2 improvements will further expand capacity of the facility and improve processes to meet future regulatory changes.

The proposed improvements include:

- Replacing screenings equipment;
- Adding screenings washing and compacting capability;
- Replacing existing grit handling equipment;
- Improving the headworks ventilation system;
- Constructing a biological nutrient removal process basin to meet future loading and permit requirements;
- Upgrading the existing disinfection system to comply with more stringent regulations and meet future flow requirements;
- Expanding biosolids storage capacity and developing an alternate means of disposal; and
- Installing a stand-by generator.

Phase 1 improvements will preserve the integrity and quality of the Flathead River and Flathead Lake by increasing the treatment plant's ability to remove nitrogen. In addition, installation of ultraviolet (UV) disinfection will remove hazardous chemicals from the river and reduce effluent toxicity.

Improvements will include installation of more energy-efficient equipment and systems that will reduce energy and chemical use at the facility. The improvements will expand the plant's ability to use plant effluent for irrigation and nonpotable water use at the facility, reducing future demand on the potable water supply. Expansion of the biosolids storage and disposal system will allow for continued beneficial re-use of the facility's biosolids.

The proposed improvements will allow more dense, urban-type development, which will increase housing availability closer to schools, shopping, employment centers, etc.; reduce sprawl development and commuting time, potentially reducing fuel usage; and potentially reduce housing costs.

Technical Assessment

Project Background

The Columbia Falls wastewater system consists of a central collection, pumping, and treatment system. The wastewater treatment plant is an activated sludge treatment plant operated to enhance nitrogen and phosphorus removal. The plant has a tertiary chemical treatment step for the additional removal of phosphorous. Treated effluent is discharged to the Flathead River. The treatment system has had exemplary performance in meeting permit discharge limits. The facility has consistently reported BOD and TSS removal efficiencies of greater than 95%, resulting in typical effluent concentrations less than 10 mg/l for both BOD and TSS. Concerns over declining water quality in Flathead Lake, into which the Flathead River flows, have led to nutrient limits on municipal discharge for the city of Columbia Falls. The Columbia Falls discharge permit includes a total phosphorous limit of 1 mg/l.

Improvements to the Columbia Falls wastewater treatment facilities are needed to provide reliable treatment, to comply with regulatory requirements, to improve operational efficiency, and increase capacity to accommodate community growth.

Major system improvements include the following:

- The bar screen and screenings system in the headworks building is over 20 years old, has significant corrosion, and is approaching the end of its useful life. The PER examined six types of influent screens, each equipped with a washer/compactor to improve screenings processing and including a climbing bar screen, stair screen, spiral screen, rotary drum screen, traveling rack screen, and a perforated plate screen;
- The aeration basin is over 20 years old and nearing its hydraulic capacity. The aeration equipment is antiquated and inefficient;
- Stringent discharge limits for total nitrogen and phosphorous will require a reliable, high-performance treatment plant. The PER examined four biological nutrient removal facilities to provide increased capacity and improved performance including a medium rate activated sludge system (MRAS) for biological nitrogen and phosphorous removal, an MRAS system for biological nitrogen removal with chemical phosphorous removal, standard activated sludge system for biological nitrogen and phosphorous removal, and a standard activated sludge system for biological nitrogen removal with chemical phosphorous removal;
- The existing disinfection system is nearing its capacity and it is anticipated that DEQ will require year-round disinfection and elimination of chlorine residual before discharge. To address these concerns the PER evaluated four alternatives, including gaseous chlorine with dechlorination, liquid sodium hypochlorite with dechlorination, open channel ultraviolet disinfection, and closed pipe ultraviolet disinfection;
- At the current rate of biosolids production, the facility's storage capacity of dewatered sludge will be exceeded by 2010. To address capacity issues, the PER considered expansion of covered storage, constructing a sludge-storage silo, and purchasing a new sludge hauling vehicle; and
- Future growth of the community will require expansion of the biosolids disposal process. Due to the high phosphorous content of the biosolids, phosphorous limits for land application sites may limit the use of fields adjacent to the treatment plant for disposal. The PER examined four alternatives including continued land application, contract composting, landfill, and composting on-site.

The Columbia Falls treatment plant does not have back-up stand-by power generation, leaving the facility unable to treat wastewater during power outages. The Preliminary Engineering Report (PER) examined several alternatives for providing back-up power including connecting to a separate substation, portable standby generator, and an in-place power generator.

Technical Approach

The applicant proposes installation of a stair screen and washer/compactor to enhance reliability, operational ease, and performance. The new screening system will reduce health risks to operations personnel who haul the screenings, and will also result in a significant reduction in odor. A grit washer will also be installed to improve the quality of the grit material and reduce odor in the headworks building. To minimize corrosion in the headworks building, the ventilation system will be improved and the influent channels and grit chamber covered.

To provide enhanced nutrient removal, the applicant proposes to construct a standard activated sludge system designed for biological nitrogen and phosphorous removal with chemical phosphorous removal as a back-up. For this alternative, a compartmentalized three-stage biological nutrient tank with anaerobic, anoxic, and aerobic zones will be constructed. The existing aeration basin will be converted to an equalization basin. The activated sludge system with nitrogen and phosphorous removal was selected based on process performance/effluent quality, operability, compatibility with the site for future expansion, and its ability to meet future permit and TMDL requirements. The PER recommended that the MRAS for biological nitrogen and phosphorous removal be given further consideration during the pre-design phase.

Due to upcoming permit requirements, the need for expansion to meet future flows, and safety concerns, an open channel ultraviolet disinfection system will replace the chlorine gas system currently used. UV disinfection was selected since it eliminates the risk for chemical spills, provides greater assurance of compliance with future regulatory requirements, and allows for easier construction implementation.

Biosolids are currently land-applied only twice a year due to site restrictions associated with field conditions and inclement weather. If the biosolids can be applied four times per year, additional sludge storage is unnecessary. To improve accessibility to the land application site, the applicant will purchase a four-wheel-drive sludge-application vehicle. In addition, improvements will be made to the dewatered sludge conveyance system. If expansion of the biosolids disposal process becomes necessary or the city loses its lease to use the existing land application site, the applicant plans to purchase a vehicle that can haul the dewatered biosolids to the landfill.

Additional improvements include upgrading laboratory equipment to meet the needs of the new BNR facility and testing requirements, installing stand-by power generation to maintain equipment and facilities critical to the biological process, and upgrading the SCADA system to include new processes and remote monitoring and control.

The treatment facility is designed to accommodate growth in the Columbia Falls area. This will require expansion of the city boundaries including the installation of new sewer mains and laterals into adjacent areas. These costs were not discussed in the PER. The project is proposed to begin design in spring 2007 with implementation of the plant improvements scheduled for spring 2008.

Specific tasks to be accomplished:

- Install an influent screening device with washer/compactor;
- Install a grit washer;
- Cover influent channels and grit chamber and improve headworks building ventilation system;
- Convert existing aeration basin into an equalization basin;
- Construct a compartmentalized three-stage biological nutrient tank with anaerobic, anoxic, and aerated zones;
- Construct an open channel ultraviolet disinfection system;
- Purchase vehicle to transport dewatered biosolids to landfill;
- Purchase four-wheel-drive biosolids land application vehicle and improve biosolid conveyance system;
- Install in-place stand-by power generator;
- Upgrade laboratory equipment; and
- Upgrade SCADA system.

Project Management

The proposed project involves several funding agencies, a project engineer, a construction manager, and various staff within local government. The Columbia Falls city manager will oversee grant administration and manage fiscal responsibilities of the grant portions of the project. The water and wastewater superintendent will coordinate activities and communication between the engineers, contractors, and the grant administrator, and will manage the schedule, cost, and quality of the project. The project engineer will be responsible for engineering, major project tasks, ensure any required changes in the project's design are accomplished, and is the primary contact between the project management team and the contractor. The project management team provides for a staff of specialists to perform duties important to the project within their areas of expertise. Roles of the project management team are clearly defined in the grant application and are appropriate given the budget allocations and project approach. The

project budget allows for funding to support the financial and administrative aspects of the project. The proposed project schedule anticipates completion by fall 2008.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$53,000	**$53,000**
Professional & Technical	$0	$0	$1,087,000	**$1,087,000**
Construction	$100,000	$0	$2,670,000	**$2,770,000**
Total	**$100,000**	**$0**	**$3,810,000**	**$3,910,000**

The project budget is complete and includes adequate detail to show that the proposed budget is sufficient to complete the proposed project. The applicant has applied for a $750,000 TSEP grant, a $1 million STAG grant, and plans to contribute $954,000 in local reserves to the project. The city will also obtain WPC SRF loan funding for $1,106,000 for the remainder of the project budget. The applicant is eligible for SRF loan funding.

A few omissions occurred in the project budget. The project budget does not include provisions for the one annual reserve payment required by the SRF program. The budgeted contingency is adequate to handle this shortfall.

The applicant is a local government with the ability to collect charges for debt and operation of its water and sewer systems. The current base residential charge for sewer service is $44.35 per month. The projected base residential rate for sewer is $47.98 per month, and will affect 1,734 households. The current base water rate is $16.40. This will result in a combined base residential utility bill (water and sewer) of $64.38 which is 117% of the Department of Commerce's target rate.

Cost estimates were provided for the alternatives considered for each of the project components and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has primarily resource preservation benefits. Installation of the ultraviolet disinfection system will improve and preserve the water quality within the Flathead River. Construction of the biological nutrient removal treatment facility will provide additional treatment capacity and produce a high-quality effluent protecting and preserving downstream uses on the Flathead River and Flathead Lake. Installation of a back-up power generator plant will enable the treatment plant to provide adequate treatment during extended power outrages, thus protecting uses and aquatic life in the river. Expansion of the treatment capacity will enable the facility to accommodate growth in the Columbia Falls area and encourage denser, urban-type development which will further eliminate use of septic systems. This will help preserve the quality of groundwater. Finally, improvements to the wastewater system will help preserve the city's central wastewater collection, pumping, and treatment system.

A secondary resource benefit is management benefits associated with installation of back-up power, an upgraded SCADA system to improve monitoring of the plant, and expansion of the sludge storage and disposal facilities. There are no measurable resource development or conservation benefits. Multiple-use benefits include benefits to fish and wildlife from the reduced nutrient load to the river. Also, the recreational value of the river will be improved by better wastewater treatment.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 55

Applicant Name	Hamilton, City of		
Project Name	Hamilton Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	625,000	Applicant
	$	450,000	CDBG Grant
	$	1,000,000	STAG Grant
	$	750,000	TSEP Grant
	$	176,000	WPC SRF Loan
Total Project Cost	$	3,101,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The City of Hamilton's Wastewater Treatment Facilities Improvements Project will expand and upgrade existing facilities to meet water quality requirements, address replacement of aging equipment, and meet growth requirements.

These improvements include:

- Installing a new mechanical bar screen;
- Installing a second dissolved air flotation thickener unit;
- Installing additional vacuum biosolids dewatering;
- Replacing the existing engine generator and electrical service entrance equipment;
- Installing a nonpotable water pumping station at the wastewater treatment plant; and
- Installing a radio-based telemetry station at each wastewater pumping station not currently monitored.

The total proposed cost for these improvements is $3,100,000.

The recommended improvements will allow the Hamilton facility to treat wastewater to a much higher standard than currently available. The proposed improvements, focused for the Renewable Resource grant, include installation of a new nonpotable water supply that will enable the city to significantly reduce the facility's reliance on the city's potable water system. The nonpotable water pumping system will allow reuse of treated wastewater for chlorination and other treatment processes within the facility. The result will be an immediate conservation of nearly 800,000 gallons per month from the city's domestic water supply. In addition, other proposed improvements will allow denser, urban-type development, further eliminating septic systems and providing upgrades to the aging community system, which allows more efficient and less wasteful use of water.

This project will also benefit Montana's renewable water resources by preserving and protecting water resources from contamination. Hamilton's drinking water source is its sole source aquifer, an unconfined system that allows surface contamination to pass into this water source. Converting aging systems that have shown failures and connecting septic and other on-site community systems to a central wastewater treatment plant is the only way to protect the water of the Hamilton community.

Technical Assessment

Project Background

Hamilton has identified problems at the wastewater treatment plant and within the collection system that pose a threat to its ability to protect public health, the environment, and the potable water source. An updated Wastewater Facilities Plan identified more than $6.2 million in upgrades that will be necessary over the next five to 10 years. Critical upgrades to be addressed in Phase 1 of this long-term project involve improvements to the solids processing and management systems and the collection system.

The proposed improvements to the Hamilton wastewater treatment facilities are needed to provide reliable treatment capacity, to comply with regulatory requirements, to improve operational efficiency, and to enhance the interface with encroaching residential and commercial development.

Technical Approach

The primary goal of the facilities planning process was to provide a plan that would allow the wastewater utility to serve the Hamilton community through the early part of the coming century while protecting the highly valued natural environment in the area. Phase 1 of the wastewater treatment facilities improvements will expand and upgrade existing facilities to meet water quality requirements, address replacement of aging equipment, and meet growth requirements.

Specific tasks to be accomplished:

- Replace the mechanical bar screen;
- Install a second dissolved air flotation thickener (DAFT) unit at the wastewater treatment plant to expand solids thickening capacity and provide process unit redundancy;
- Install additional vacuum biosolids dewatering to expand the biosolids handling system capacity;
- Replace the existing engine generator and electrical service entrance equipment;
- install a nonpotable water pumping station at the plant; and
- Install a radio-based telemetry station at each wastewater pumping station not currently monitored to provide for central alarming and station status monitoring.

Renewable Resource grant funds will be dedicated to construction of the new nonpotable water supply. A nonpotable water supply will allow reuse of treated wastewater for chlorination and other treatment processes within the facility. The result will be immediate conservation of nearly 800,000 gallons per month from the domestic water supply. In addition, the other proposed improvements will allow denser, urban-type development, further eliminating septic systems and providing upgrades to the aging community system, which allows more efficient and less wasteful use of water.

It is proposed that the recommended plan be constructed between April 2007 and September 2007.

Project Management

Management of the Phase 1 wastewater facilities improvements will be assigned to the mayor of Hamilton, the administrative assistant to the mayor, and contracted engineering consultants. The mayor, with input from the city council public works committee, will serve on the project management team as liaison with the city council and the public. The administrative assistant to the mayor will coordinate activities and communication between the engineers, contractors, and grant administrator and will manage the schedule, cost, and quality of the project. The engineering consultant will provide assistance to the administrative assistant to the mayor as well as acting as the primary contact between the project management team and the contractor. Sixteen public meetings have been conducted since September 2003 to discuss the proposed wastewater treatment facility improvements.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$55,000	**$55,000**
Professional & Technical	$0	$0	$863,000	**$863,000**
Construction	$100,000	$0	$2,083,000	**$2,183,000**
Total	**$100,000**	**$0**	**$3,001,000**	**$3,101,000**

The applicant is proposing a reasonable budget and funding sources to finance the project. Approximately 4,500 users will be impacted by improvements at the wastewater treatment plant. The applicant anticipates a population of nearly 7,000 by 2015. It is estimated that monthly sewer rates will increase from $22.34/EDU to $34.30/EDU. If grant funding is not available, the applicant proposed that additional phasing of the project be implemented. This project was not included in the preliminary list of projects under consideration for funding from the STAG program.

Benefit Assessment

The wastewater treatment plant upgrades and expansion project will benefit the renewable water resources in the area primarily by conserving domestic water by implementing use of a nonpotable water supply for providing process water to the existing treatment processes. The city uses approximately 800,000 gallons/month of domestic water at the treatment plant. The Hamilton aquifer water quality will be preserved by connecting new and existing homes to a centralized system and reducing impacts to the groundwater from individual on-site treatment systems.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Environmental impacts on the Bitterroot River and Hamilton aquifer will be beneficial.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 56

Applicant Name	Hysham Irrigation District (HID)		
Project Name	Hysham Main Ditch Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	35,800	Local Match
Total Project Cost	$	135,800	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The proposal area covers 6,165 irrigated acres in the Yellowstone River Basin in Treasure County. Irrigation water is pumped from the Yellowstone River with three 350-horsepower electric pumps. The primary concern is to deliver more water to users in the lower part of the district. A portion of the lower main ditch does not have adequate water transmission capacity during the high water demand growing season. At present, the three pumps deliver more water than a segment of the lower main ditch can handle; thus, some of the water is spilled back into the river. At

present, up to 20% of the pumped water is spilled back into the Yellowstone River because of this undersized ditch. This is a waste of electrical energy and also downgrades river water quality.

The primary purpose of this project is to increase the ditch carrying capacity 30% by increasing the volume that can be carried in it. By increasing the ditch capacity, lower ditch users will receive adequate water, and they will also be able to bring an additional 135 dry land crop acres under irrigation. It will also generate more farm income, increase the tax base for Treasure County, and reduce the electricity cost per acre for the users. Electricity is the largest single expense for the district. Last year, the electric bill was $53,186 or $8.67 per acre. This project will result in the district making better use of the water it pumps. It will not result in the district pumping more water. Present district crop value is about $4.7 million. With the proposed improvements, crop value should increase to $4.85 million.

Technical Assessment

Project Background

The HID was constructed in the late 1940s. It is on the south side of the Yellowstone River south of Hysham.

A portion of the main canal has insufficient carrying capacity. The goal of this project is to increase the water-carrying capacity of this portion of the main canal and to decrease seepage with a ditch lining, thus resulting in more efficient management of water use. Alternatives included various ditch lining materials.

Technical Approach:

The preferred alternative is to raise an 8,708-foot section of the main canal banks by two feet, repair damaged areas of the concrete portions of this 8,708-foot section, and line the earth portion with polypropylene liner. The application indicates that this alternative is the least costly, will have the longest life, and will require the least maintenance. The application indicates the preferred alternative will increase main canal capacity and decrease canal seepage and spilling to provide more efficient management of water use.

No major environmental impacts should occur. Construction would take place during the non-irrigation season with start-up in October 2007 and completion by May 2008.

Specific tasks to be accomplished:

- Place earth fill to add two feet of elevation to the canal banks of the affected 8,708-foot section of the canal;
- Repair damaged areas of the existing concrete-lined portions of the affected 8,708-foot section of canal; and
- Line the 2,920-foot earthen portion of the affected 8,708-foot section of the canal with polypropylene liner.

Project Management

The application indicates adequate staff is available to manage the project. A contracted consultant will manage the construction as well as carry out administration of the project in coordination with the HID chairman and secretary. The consultant will also design the project with implementation by October 2007. The public will be involved through monthly HID meetings.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$0	**$0**
Professional & Technical	$14,500	$0	$2,500	**$17,000**
Construction	$85,500	$0	$33,300	**$118,800**
Total	**$100,000**	**$0**	**$35,800**	**$135,800**

All administration costs are included under the professional/technical section since it is indicated the consultant will perform all administration work. The HID assesses $13.50/acre on 6,165 acres and 36 water users. The application states that this project will not cause an increase in the assessment. All costs appear reasonable including alternative costs. Matching funds will be from the HID reserve account.

Benefit Assessment

The main renewable resource benefit associated with this project will be improved management of water use through increased water carrying capacity of the main canal and reduced spilling of water: Some water conservation should also occur due to reduced canal seepage because of the canal lining. The application states resource development will result from an additional 135 acres of irrigated land from the water conserved.

Environmental Evaluation

No long-term negative impacts are likely. Long term positive impacts should result from reduced water seepage and spilling from the system. Short-term negative impacts of dust, noise, and minor soil and vegetation disturbance will occur during construction.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 57

Applicant Name	Shelby, City of		
Project Name	Shelby Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	750,000	TSEP Grant
	$	650,000	DW SRF Loan
Total Project Cost	$	1,500,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The city of Shelby has been very fortunate in the insight and forethought of community leaders to address water-related issues efficiently and in a timely manner before dire problems threatened the water system. Several projects are top priority for the water system at this time. The city water system was established over 65 years ago, with original wells drilled in the 1940s. The well field is seven miles south of Shelby on the Marias River. Twelve wells produce water for the city of Shelby. Recently, the Montana Department of Environmental Quality (DEQ) found well number four susceptible to groundwater contamination. A well was completed in 2005 and a well house will be completed this spring. A disinfection facility was also completed last fall to address pressing water issues. Completion of this water source project will include protection of the wells from flood waters, especially in the areas immediately adjacent to the well heads. An impervious seal 100 feet in diameter will be completed to prevent flood waters from percolating along the casings and directly into the well influence area.

Many of the original water lines are still in operation within Shelby, but they are quickly deteriorating. The city has spent considerable time and expense in repairing the aging asbestos cement piping. In the last two years, the city has incurred over $20,000 in road repair costs and an additional $20,000 in overtime wages to city employees working on the leaks and major breaks associated with these older lines. Not only is the city concerned with the

health and safety risks of these old service lines and the tremendous expense they are creating for the community, but also the inadequacy in size of lines to meet essential fire flow and service needs. These projects are of immediate concern in regard to potential impact of contamination, inadequate fire flows and service needs, high maintenance requirements, and water loss.

Technical Assessment

Project Background

Shelby is the county seat for Toole County and is in north-central Montana at the intersection of Interstate 15 and U.S. Highway 2. The original water system was established over 65 years ago. System replacements and additions have occurred over the decades. A booster station, 500,000-gallon elevated steel tank, and several thousand feet of distribution mains were constructed in 2001 in conjunction with the Crossroads Correctional Facility. The system serves a population of approximately 3,300.

Water supply for Shelby consists of a series of 12 wells, with the oldest drilled in 1940 and the newest in 2005. The well field is in the floodplain of the Marias River. Transmission mains in the well field were recently replaced. In 2004, a bank stabilization project was completed to protect the well field. A new ultraviolet disinfection facility was constructed in 2005. A source water protection plan for the well field was completed in 2004 and one issue of concern noted in the report was protection of the wells from flood waters in the areas immediately adjacent to the well heads. Possibly, several of the wells were constructed without the proper annular seal. Over the last 10 years, samples taken at the well sites have tested positive for coliform. The contamination is possibly due to flood water percolating along the well casings.

The Shelby system has four storage tanks with a total capacity of 3.1 million gallons. The storage volume is sufficient to provide system and fire flow demands.

The PER identifies numerous distribution system deficiencies. These include inadequate fire flows in the middle pressure district, the need for an additional connection across the east-west transportation corridor containing Highway 2 and the railroad, and aging water mains in the low pressure district that have a higher rate of failure than those in other portions of the system.

The part of the city north of the railroad tracks and U. S. Highway 2 contains about half of the service area, yet is fed by only one six-inch and one eight-inch crossing. Repairing either of these lines in the event of a failure would be time consuming and costly due to the transportation corridor, inevitably resulting in reduced service to the north service area for an extended period. An additional crossing is needed to provide redundancy.

Technical Approach

To address the well head protection, a 100-foot impervious asphalt apron will be constructed around each of the well heads. This will add another layer of protection against contamination resulting from flood waters inundating the well field.

Approximately 3,000 lineal feet of new water main will be installed to complete a loop in the southwest portion of the system to improve fire flows in the middle pressure zone.

Approximately 3,600 lineal feet of existing water main will be replaced in the low pressure zone to improve fire flows and reduce leakage and maintenance.

Approximately 2,800 lineal feet of new water main will be installed to provide another connection to the north service area from the south and will include replacement of undersized piping to provide adequate flows to the north side system.

The project is proposed to begin design during summer 2007 and be completed by the end of 2008.

Specific tasks to be accomplished:

- Construct 100-foot asphalt aprons around each of the well heads; and
- Install approximately 9,400 lineal feet of new water mains to replace leaking and undersized water mains and improve fire protection. An additional connection between the south and north portions of the distribution system will be established.

Project Management

The city staff will take the lead in project management and appear well qualified. The proposed management team has worked on numerous grant and loan projects within the community. The project budget allows for funding to support the city in the financial and administrative aspects of the project.

The project management plan makes no reference to a public involvement plan.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$67,000	**$67,000**
Professional & Technical	$12,000	$0	$156,000	**$168,000**
Construction	$88,000	$0	$1,177,000	**$1,265,000**
Total	**$100,000**	**$0**	**$1,400,000**	**$1,500,000**

The project budget is complete and includes adequate detail to show the proposed budget is likely sufficient to complete the proposed project. The proposed project budget does not match the estimated costs presented in the "Detailed Description of Preferred Alternative" section of the PER. This section indicates the cost for the preferred alternative is $1,542,855. The project budget presented in the Uniform Application is $1,500,000. Therefore, the budget may be short by almost $43,000. The applicant has applied for a TSEP grant of $750,000. The applicant plans to utilize a DW SRF loan of $650,000 for the remainder of the project budget. The applicant is eligible for TSEP and DW SRF funding.

The applicant is a local government with the ability to collect charges for debt and operation. Current residential charges for water service are $30.86 per month. The projected residential rate will be increased to $33.44 per month, and will affect 1,037 households. The existing sewer rate is $19.60 per month. This will result in a combined residential utility bill (water and sewer) of $53.04 which exceeds the target rate by $1.52 per month (103% of the target rate).

Cost estimates were provided for most alternatives considered for each of the project components and were used to help determine preferred alternatives. Detailed cost estimates for well head protection and one of the preferred distribution alternatives were not included in the PER. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has resource conservation, management, and preservation benefits.

Resource conservation benefits include improved utilization efficiency of source water supplied to the town by replacing water lines that leak. The project will allow the city to better manage the system through improved fire flows and improved service needs within the city. The proposed distribution improvements will improve the existing water system which will retain the renewable resource benefits that exist today. The well head protection portion of the project will protect the groundwater aquifer and ultimately improve source water quality. The application included letters of public support for the project.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 58

Applicant Name	Montana Department of Natural Resources and Conservation (DNRC), Forestry Division, Montana Urban and Community Forestry (UCF) Program		
Project Name	Community Tree-Planting Grants		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	120,000	Subgrantee Match
	$	20,000	U.S. Forest Service
Total Project Cost	$	240,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The goal of the Community Tree-Planting Grants project is to increase the number of urban trees in Montana's communities. This will be accomplished by providing subgrants to Montana cities, counties, and Tribes for new tree-planting projects on public lands within municipal boundaries with the goal of increasing present tree population by at least 10%. Trees are a major capital asset and long-term investment in cities and towns. Just as streets, sidewalks, sewers, public buildings, and recreational facilities are part of a community's infrastructure, so are publicly owned trees. Urban trees provide tangible physical, social, economic, and renewable resource benefits to communities. Communities can promote energy efficiency through urban tree-planting and stewardship programs that strategically locate trees to save energy and minimize conflicts with urban infrastructure. These same trees provide additional benefits by reducing storm water runoff; improving local air, soil, and water quality; reducing atmospheric carbon dioxide; increasing property values; calming traffic; enhancing community attractiveness and investment; and promoting health and well-being. Trees in the urban environment make Montana communities more livable and thus improve the quality of life for all Montana citizens.

The Montana Urban and Community Forestry (UCF) Program is requesting $100,000 from the DNRC Renewable Resource Grant and Loan Program (RRGL) to fund tree-planting projects in Montana's communities. Subgrants would be available to communities that demonstrate projects focusing on new tree-planting activities, serve the citizens of their community, involve local volunteers, and provide a 1:1 matching cash and/or in-kind contribution.

The goals of the Community Tree-Planting Grants project as proposed by the UCF program run parallel to those of the DNRC RRGL program. Both seek to conserve and protect the quality of Montana's renewable resources in both the urban and rural environment through proper management and further development of Montana's urban renewable resources.

Technical Assessment

Project Background

The UCF program's grant request will be used to fund tree-planting projects on publicly owned land within the municipal boundaries of city, county, and Tribal governments across the state. The goal of the project is to increase the number of trees on publicly owned land within the municipal boundaries in Montana city, county, and Tribal governments.

In FY 2007, the U.S. Forest Service (USFS) grant to the UCF program will be reduced by 24%. This funding cutback nearly eliminates the ability of the Montana UCF program to offer tree-planting grants to communities. Since 2001, the Montana UCF program, through its grant from the USFS, has provided funding to 87 municipalities for urban tree-planting and program development projects. In five years, the program has successfully distributed nearly $200,000 in grants with matching contributions of $450,000 from the municipal grantees. All requested grant funding will be used to provide subgrants to communities.

Technical Approach

If the UCF program receives a DNRC grant, the UCF program coordinator will work with local communities and organizations to conduct community tree-planting grant workshops. Then it will issue a statewide RFP for grant applications. The RFP will require a project description; the community's plan for utilizing volunteers and the public; a project work plan and schedule describing the community's plan of work and schedule for completing each activity; budget calculation forms including personnel expenses, operating expenditures, and professional services for project expenses; defining grant funds requested, applicant cash, and donated and in-kind contributions; a maintenance schedule describing the plan activity, schedule for activity, and responsible person/organization for two years following project completion.

The UCF program's grants committee will review and rank the applications for subgrants and subgrant recipients will be chosen and notified by January of each year. The subcontracts to communities will then be issued. Upon completion of the tree-planting project, a request to the UCF program will be made providing documentation of a project report, copies of paid invoices, and documentation of match funding. The UCF program will then submit a bill to the DNRC RRGL program for reimbursement. All grant administration, including quarterly reports, will be done by the UCF program coordinator. Following completion of the project, the UCF program field staff will conduct field inspections to make sure the new tree plantings are maintained.

Specific tasks to be accomplished:

- Prepare statewide RFP;
- Award subgrants based on the review and ranking of project applications;
- Prepare subgrant contracts; and
- On completion of the tree-planting project, conduct a field inspection.

The application considered only one alternative. As proposed, the grant will be divided evenly between FY 2008 and FY 2009, and $50,000 of subgrants will be awarded annually.

Project Management

The DNRC UCF program will be solely responsible for administering all aspects of the DNRC RRGL grant and all subgrants. Administration of the grant will be done on an in-kind basis. The UCF has two urban foresters who will oversee the tree plantings, provide education and guidance in planning and implementation, and inspect the tree-planting projects when completed. The UCF program staff will complete a public solicitation of applications. Each community has varying levels of public input once the subgrant is awarded, but volunteers typically help develop and complete the tree-planting projects. The project will be ready to proceed upon award of the DNRC RRGL grant.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$0	**$0**
Professional & Technical	$0	$0	$0	**$0**
Construction	$100,000	$0	$140,000	**$240,000**
Total	**$100,000**	**$0**	**$140,000**	**$240,000**

The budget provided in the application is reasonable. The application did not put a dollar amount on the in-kind services that DNRC will provide in administering the grant but if they had, the project total would be significantly higher. The $100,000 RRGL grant will be split between FY 2008 and FY 2009, $50,000 per year. The UCF program expects to plant up to 400 new trees in 10 to 40 communities over the biennium.

The USFS will provide at least a $20,000 match for the grants. The USFS is also providing for partial staffing of the UCF program through an annual grant.

Each community must make a 1:1 match (either cash or in-kind) for each subgrant.

Benefit Assessment

Planting community trees involves three renewable resource benefits. The primary benefit would be conservation, with secondary benefits in preservation and development.

Trees conserve energy by shading homes, offices, streets, and pavement and provide a natural cooling effect. Properly placed, trees can provide a 17% to 75% decrease in summer cooling costs. Annual heat savings can be up to 25% a year from trees reducing wind speed and air infiltration. Urban trees counteract the effects of urbanization and land development by reducing soil erosion and reducing runoff in storm events. Water flow is spread over a greater amount of time and the impact of storm water is reduced on storm water facilities. One study has shown that for every gallon of water intercepted by a tree during a 12 hour storm, two cents in water control costs is realized, equaling an annual savings of $226,000 for a medium-sized city.

Urbanization and land development alters and reduces natural vegetation; reduces natural infiltration properties of the watershed; significantly increases runoff amounts and decreases water quality. Urban trees counteract the effect of urbanization by (1) intercepting and storing rainfall; (2) delaying the onset of peak flows, root growth, and decomposition; (3) increasing the capacity and rate of soil infiltration by rainfall; and (4) reducing runoff. Urban trees help to preserve air quality by filtering urban pollution.

With guidance from the UCF program, communities awarded subgrants will receive information about the kinds of trees to plant with characteristics and diversity best suited to the urban environment. This conserves and preserves urban tree populations by reducing the risk of disease that could devastate entire tree populations.

Environmental Evaluation

There are no negative environmental impacts. Many positive environmental benefits are realized by planting urban trees.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 59

Applicant Name	Ronan, City of		
Project Name	Ronan Wastewater System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	300,000	WPC SRF Loan
Total Project Cost	$	400,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The City of Ronan's wastewater treatment system is comprised of gravity mains, force mains, four lift stations, aerated lagoons, and wetlands tertiary treatment. The wetlands discharge to surface water.

In July 2004, Ronan received an Administrative Order from the Environmental Protection Agency (EPA) to install a disinfection system at the outfall of its wastewater wetlands cell before discharge to Crow Creek. Fecal coliform levels frequently exceed the system's National Pollutant Discharge Elimination System (NPDES) permit levels. To comply with the order, the disinfection system must be operational by July 21, 2007.

The preferred alternative identified by the Preliminary Engineering Report (PER) is to install an ultraviolet disinfection system for the wetlands discharge and to provide auxiliary power to the four lift stations in the collection system.

Disinfection of the wetlands effluent is essential to preserve groundwater and surface water resources. Fecal coliform levels in the effluent from the wetlands range from 1 to over 100,000 organisms/100ml and frequently exceed the NPDES permitted level of 200 organisms/100ml. Crow Creek is classified by Tribal Water Quality Standards as a B-1 water body (suitable for bathing, culinary activities, and drinking water with conventional treatment). Ultraviolet radiation disinfection will control the fecal coliform levels in the effluent.

This project will purchase and install auxiliary power to the lift stations. Currently, no alternative power source is available for emergency power outages. Without an auxiliary power source, sewage can back up and overflow low-lying manholes. Auxiliary power is essential to preservation of groundwater and surface water resources. If the lift stations or manholes were to overflow, sewage could enter Crow Creek and the shallow groundwater.

Technical Assessment

Project Background

Ronan's wastewater system consists of a central collection, pumping, and treatment system. Major upgrades were made to both the collection and treatment system in the mid-1990s. The treatment system consists of an aerated lagoon system followed by wetlands treatment for nutrient reduction. The treatment system has operated largely in compliance since the upgrades were completed. One exception is compliance with the discharge permit limit for fecal coliform bacteria. The city has received an Administrative Order from the EPA to install a disinfection system for wastewater discharge so the city can meet the permit limit for fecal coliform. The PER examined several alternatives for disinfection of the effluent including ozonation, chlorination, and ultraviolet disinfection.

The city operates four wastewater lift stations which meet the needs for the community. One major deficiency is lack of back-up power for the lift stations. The engineering report examined the condition and capacity of the lift stations and several alternatives for upgrades.

Technical Approach

The applicant proposes installation of an ultraviolet disinfection system for the wastewater effluent. This alternative had the lowest capital and operation and maintenance costs. In addition, ultraviolet disinfection has been successfully

used widely across Montana and the United States. This system upgrade will allow the city to meet the fecal coliform requirements of its discharge permit and comply with the EPA Administrative Order.

Back-up power will be installed for the lift stations. This will greatly improve the reliability and redundancy of the wastewater system. This alternative meets the immediate needs of the lift stations at the least cost.

The engineering report also examined alternatives for the overall treatment system. The engineering report recommended no action at this time, but noted the treatment system should be re-evaluated once the city has completed its growth policy. This will allow the city to accurately project growth over the planning period and more accurately predict the service population of the treatment system. In addition, the current discharge permit will expire in 2007 and regulators indicated that future discharge permits will likely require consideration of ammonia and nondegradation.

The engineering report also examined capacity of the collection system. The engineering report recommended that the city continue to monitor the capacity of its collection mains as growth continues, but recommended no improvements at this time.

No significant environmental impacts were identified with any of the examined alternatives. The project is proposed to begin design during summer 2007 and be completed by the end of 2008.

Specific tasks to be accomplished:

- Construct an ultraviolet disinfection system for the city's wastewater treatment effluent; and
- Install back-up power for the city's wastewater lift stations.

Project Management

The proposed project involves several agencies and the city and city engineer are sharing grant administration tasks. The engineer will also be the overall project manager. The project manager will be responsible for keeping each funding agency informed of project progress. The project management plan outlines the duties for the engineer, attorney, bond counsel, clerk-treasurer, city council, and mayor. This provides for a staff of specialists to perform duties important to the project within their areas of expertise. The project manager and city council will inform the public through regularly scheduled council meetings.

The project management plan provides for thorough and well-organized contract management with regulatory and funding agencies, consultants, contractors, and other involved parties. Roles of the project manager are clearly defined in the grant application and are appropriate given the budget allocations and project approach. The project budget allows for funding to support the financial and administrative aspects of the project. The proposed project schedule anticipates completion by fall 2007. This is aggressive, but necessary, to meet the EPA compliance schedule.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$16,500	**$16,500**
Professional & Technical	$0	$0	$38,500	**$38,500**
Construction	$100,000	$0	$245,000	**$345,000**
Total	**$100,000**	**$0**	**$300,000**	**$400,000**

The project budget is complete and includes adequate detail to show that the proposed budget is sufficient to complete the proposed project. The applicant plans to obtain WPC SRF loan funding of $300,000 for the remainder of the project budget. The applicant is eligible for such funding.

There were a few omissions in the project budget. The project budget does not include provisions for the one annual reserve payment required by the SRF program. Also, no funds were allowed in the budget for

grant administration/professional services. The budgeted contingency is adequate to handle these shortfalls. The city may need to slightly increase the loan to provide adequate contingency for the project, depending on construction bids received.

The applicant is a local government with the ability to collect charges for debt and operation. The current base residential charge for sewer service is $18.85 per month. The projected base residential rate for sewer is $21.95 per month, and will affect 850 households. The current base water rate is $13.60. This will result in a combined base residential utility bill (water and sewer) of $35.55 which is 90% of the Department of Commerce's target rate. Therefore, the project appears affordable for residents.

Cost estimates were provided for the alternatives considered for each of the project components and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has primarily resource preservation benefits. Installation of the ultraviolet disinfection system will improve and preserve the water quality within Crow Creek. Installation of back-up power for the lift stations will help prevent sewer overflows during power outages. This will help preserve surface and groundwater quality. Finally, improvements to the wastewater system will help preserve the city's central wastewater collection, pumping, and treatment system.

A secondary resource benefit is management benefits associated with installation of back-up power. There are no measurable resource development or conservation benefits. The project has some limited multiple-use benefits because it will make Crow Creek more suitable for human uses such as swimming.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 60

Applicant Name	Pondera County Conservation District		
Project Name	Marias River Watershed Baseline Assessment		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	14,460	Applicant
	$	22,040	Natural Resources Conservation Service (NRCS)
Total Project Cost	$	136,500	
Amount Recommended	$	100,000	
Project Abstract	(Prepared and submitted by applicant)		

A Compilation and Evaluation of Baseline Information report by the Montana Bureau of Mines and Geology (MBMG) (November 22, 2005) for the Liberty County Conservation District and the Montana Department of Environmental Quality (DEQ), states:

"The greatest obstacle to describing water-quality and water-quantity in the Marias River watershed is the paucity of area-wide, time-coincident data. Several good investigations of surface-water and groundwater resources have been conducted over the past four or five decades, but only one has included the entire watershed: a report sponsored by the Montana Department of Health and Environmental Sciences in 1975. Far too many changes inland and water-use have taken place to rely on 30 year old data regardless of its quality. The U.S. Geological Survey (USGS) gauging stations provide the only long-term surface-water data in the watershed. As discussed, only one station on the main stem of the river has a period of record for water quality beyond a few years; the collection of that data ceased nearly 20 years ago.

"Without area-wide surface-water and groundwater data, evaluation of the watershed is limited to investigations whose scope was limited with respect to area, amount of data, or type of data. Regardless of the quality of data, there is very little overlap in time and it is an ill conceived approach to compare these types of data across time. A scientifically sound and defensible evaluation of any watershed requires a comprehensive, concurrent effort of data collected. Equally important, the evaluation requires concurrent, seasonal data from both surface-water and groundwater coordinated with a good understanding of the groundwater - surface-water flow paths. Such data are lacking in the Marias River watershed; the proposed plan for collecting concurrent surface water and groundwater data, both quality and quantity is critical for a better evaluation."

In 2005, the Marias River Watershed (MRW) technical coordinator and the NRCS watershed specialist began a detailed on-the-ground riparian assessment and sampling project of Pondera Coulee (74 river miles) and the upper main stem of the Marias River above Lake Elwell and below Tiber Dam to the Circle Bridge (78 river miles).

Purposes of the stream corridor assessment:

- Evaluate the fluvial geomorphology of the Marias River and Pondera Coulee to determine how channel behavior has responded to natural processes and human influences. Data will be collected to help understand the extent and impacts of the following: noxious weed infestations, stream bank erosion, transportation corridors, stream bank stabilization measures, and in-channel infrastructure (irrigation, stream crossings, etc.);
- Evaluate how riparian vegetation characteristics are related to channel types and land management practices;
- Provide various historic and current Geographic Information System (GIS) layers of stream corridor features that will serve as a baseline for monitoring trends over time; and
- Identify opportunities for improving and maintaining stream channel stability, riparian plant community health, and fish habitat. The assessment will provide information to assist in determining priority projects and to support future requests for technical and financial assistance for stream corridor projects.

Objectives of this grant request are:

- Provide a sound baseline of current watershed status by completing a two-year follow-up to the 2005 data collection on the Pondera Coulee and Marias River;
- Develop baseline data for the Dry Fork Tributary;
- Purchase monitoring equipment for local watershed data collection;
- Provide local data collection training;
- Develop a locally maintained web-access database of water quality information; and
- Establish a long-range plan for consistent and credible monitoring.

Technical Assessment

Project Background

From its headwaters at the junction of Cut Bank Creek and Two Medicine River just south of Cut Bank, the Marias River flows east into Lake Elwell (Tiber Reservoir). Below Tiber Dam, the river continues to flow eastward and then south, where it joins the Missouri River at Loma. The Marias River watershed lies in the heart of the Golden Triangle and supports dry land farming on the uplands and some irrigated farm land along the major streams. Fishing and floating have become increasingly important on the river in recent years.

The MRW, a local grassroots organization formed in 2002 to identify and correct water problems and educate river users, has worked with numerous state and federal agencies since its inception to improve water quality in the watershed. This project proposes establishment of monitoring stations along the Marias and its major tributaries to provide baseline water quality data and ongoing measurements. Building a water quality database is an important step in clarifying the present status of the watershed, assessing change, and formulating an approach to water quality improvement.

Technical Approach

This project is a joint proposal of the MRW and the Pondera Conservation District.

The goals of the project include:

- Establishing a long-term water quality monitoring network on the Marias River and its tributaries;
- Collecting water samples and discharge data to establish baseline conditions and identify sources of water quality degradation;
- Instructing regional conservation district representatives on water quality sampling and discharge monitoring methods;
- Developing a GIS database and maps; and
- Developing a regional water quality database.

The proposal would benefit from utilizing results from the 2005 field season in designing additional sampling work in the drainage and coordinating with field work conducted by the Environmental Protection Agency (EPA) and the DEQ. The proposal did not consider a no action alternative. The one alternative presented in addition to the preferred alternative--allowing water quality assessments to be conducted sporadically by nonlocal entities outside the watershed--did not include a discussion of costs. The preferred alternative--establishing a water quality monitoring network through the MRW in cooperation with numerous local, state, and federal entities--is presented logically and includes an adequate basis for adoption.

The two-year (2007-2009) project implementation schedule for establishing a network of monitoring stations, training personnel, and developing a database appears feasible and well thought out but lacks detail.

Specific tasks to be accomplished:

- Locate and establish 12 water quality monitoring sites and collect water quality and discharge data quarterly at each monitoring station;
- Train local conservation district representatives in proper water quality monitoring, sampling, and discharge measuring procedures;
- Construct a water quality and watershed characteristics database using ACCESS, a widely available and easy-to-use data management program;
- Enter pertinent information into a GIS database which will then be incorporated into the local watershed database referenced in Task 3; and
- Provide a written assessment of watershed baseline conditions for use in prioritizing restoration projects and developing best management practices.

Project Management

The proposal places responsibility for project management on the MRW coordinator, but currently MRW has no technical coordinator due to a funding shortage. To complete this project, one or more contract employees will be required to provide the expertise and services of a technical coordinator. It is not clear how this might affect project management and implementation.

Opportunities for public involvement include meetings of the six conservation districts associated with this project, which are open to the public and held monthly. MRW meetings are advertised and open to the public as well. The MRW website will contain information about project activities.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$4,200	$0	$6,000	**$10,200**
Professional & Technical	$95,800	$0	$30,500	**$126,300**
Construction	$0	$0	$0	**$0**
Total	**$100,000**	**$0**	**$36,500**	**$136,500**

The Pondera Conservation District will manage the financial aspects of the project. Although the cost estimates appear reasonable, the proposed budget lacks detail for contracted services. The original budget proposal has changed from using an employee of the Liberty Conservation District to conduct the major part of the project to utilizing requests for proposal (RFPs) to hire contractors to conduct the work. Some discrepancies exist between the budget tables and the text.

There is no cash match for the requested RRGL funds. There is an in-kind match of $36,500 from project sponsors and the Natural Resources Conservation Service (NRCS). However, this in-kind match is from field work completed in 2005 and not part of the current Renewable Resource grant proposal. The in-kind match (which includes $6,000 from the MRW technical coordinator) may no longer be accurate because that position has lost its funding. The technical coordinator position for the project will now have to be contracted through an RFP.

Benefit Assessment

The overall goal of this project is improved water quality throughout the Marias River watershed through long-term monitoring and early warning detection. The data collected will provide a baseline from which future best management practices can be developed. Unfortunately, the data gathered in 2005 were not utilized to help design the current proposal. The DEQ is conducting water quality sampling in the drainage in 2006 that does not appear coordinated with this proposal.

Education of landowners about conservation methods could help preserve water quality in the region if volunteers can be trained to accurately take water quality samples. Maintaining the ecological integrity of the Marias River could allow expanded recreational use for river float operations and fishing. Fish and wildlife resources will benefit from adequate supplies of clean water. Water quality monitoring over time can provide a way of measuring the impacts of current management practices and a basis for making improvements where needed.

Environmental Evaluation

Environmental impacts associated with the project were evaluated and no apparent adverse long-term impacts will result.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 61

Applicant Name	Sheridan County		
Project Name	Raymond Dam Rehabilitation Project		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	57,030	Sheridan County, In-Kind
Total Project Cost	$	157,030	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

Raymond Dam is a 16-acre public recreational reservoir constructed by the Work Projects Administration (WPA) in 1936. Over the years, gradual siltation and a 1993 flash flood have reduced the reservoir's storage capacity and deteriorated its recreational value for fishing, swimming, and boating. Sheridan County is requesting $100,000 in Renewable Resource Grant and Loan (RRGL) funding to prepare an engineering assessment and dredge the sediment build-up from the reservoir to preserve recreational and other public benefits provided by Raymond Dam. Sheridan County will provide $37,030 in matching funds, for a total project budget of $137,030.

Technical Assessment

Project Background

Raymond Dam is in the community of Raymond in Sheridan County seven miles north of Plentywood. The project was constructed as a WPA project in 1936 and has served as a community park improved and maintained by the Raymond Park Board. The Montana Department of Fish, Wildlife & Parks (DFWP) historically stocked the pond with fish. The pond has been a very popular site for fishing, picnicking, and other recreation. The applicant estimates that the restored project would provide nearly 2,000 fisherman-days annually. The pond provides habitat for waterfowl, songbirds, beaver, and other riparian wildlife. The pond serves as a water source for fighting fires in the region.

In 1993, a flash flood washed a large amount of sediment into the pond, which reduced the depth of water. Because of the reduced depth, the pond has not been able to sustain fish and they die over the winter from lack of oxygen. The shallow depth has also contributed to algae and other vegetative growth that has deteriorated the pond for swimming, boating, and other recreation. DFWP has indicated that it will not re-stock the pond unless the reservoir is rehabilitated. The Raymond Park Board and Sheridan County have no financial resources to study or repair the project.

The Montana Department of Natural Resources and Conservation (DNRC) Dam Safety Program has evaluated the dam and determined that it is not a high hazard structure. It does not need to meet the stringent design standards required of high hazard structures. However, a failure of the dam could cause significant damage and DNRC recommended in April 2006 that the county consider major repairs.

The grant application requests funding to prepare an engineering assessment and dredge the sediment from the pond; this would restore the pond to historic conditions. The applicant estimated that 30 acre-feet of storage will be restored.

Technical Approach

The application includes an initial technical evaluation that would include surveying the site and pond to prepare design and construction documents for dredging the pond. The actual volume to be dredged will be determined based on the surveying. The estimated volume in the application was based on an average of two feet deep over the area of the reservoir. The dredged sediments would be discharged into the riparian areas around the reservoir or, if needed, onto adjacent farm land. The county would either rent a dredge or would contract the dredging. The county road department would supplement the excavation as needed and reclaim the dredged sediments as an

in-kind service. The value of this in-kind service was not included in the cost estimate or the amount of sponsor contribution.

The proposed project schedule would consist of the engineering assessment in fall 2007, followed by construction permits in summer and fall 2008. A detailed schedule of tasks is provided and is reasonable for the proposed alternative.

The proposed plan does not address the existing condition of the dam. On February 24, 2006, DNRC inspected the dam and noted the spillway has ongoing erosion problems that should be addressed and that there reportedly was a standpipe with a conduit though the dam that cannot be located. The DNRC memo does not mention other deficiencies with the dam, such as seepage. Condition of the dam and whether repairs are necessary should be addressed.

The grant application indicates that reconstruction of the dam and conventional sediment excavation would be excessively costly based on a 1985 evaluation. The application also indicates that the high cost was due to providing a spillway to meet high hazard dam design standards. Comparison of the dredge alternative to this replacement alternative is not a valid comparison as the dam repair alternative utilizes a higher standard than is required and the dredge alternative does not address whether the dam is in need of significant repair. Repair of the dam may also provide significant long-term benefits such as an ability to control releases or future sediment accumulations.

It is recommended that an evaluation of the dam should be added to the proposed project. This evaluation could be added to the proposed engineering assessment to identify potential deficiencies in the dam and potential corrective measures. The additional cost for this engineering may reduce the funds available for the dredging or it could be provided by other sources. If repair of the dam is necessary, the repairs could be completed as a future project. Potential funding sources include a future RRGL grant, DFWP grants, or potential private organizations such as Walleyes Unlimited.

Specific tasks to be accomplished:

- Design consultant selection, September 2007;
- Engineering site assessment and preliminary design, September 2007-January 2008;
- Prepare and submit permits, February-March 2008;
- Prepare bid documents and bidding, March-June 2008; and
- Project construction, August-October 2008.

Project Management

The Sheridan County planning office will provide administrative and management services for this project. The planner will be responsible for procuring engineering services, publishing notices, conducting public meetings, processing requests for payment, submitting grant progress reports, and preparing close-out reports. The county clerk and recorder's office will provide accounting services. Engineering services, including construction administration, will be contracted with a consulting firm. The project budget allows for funding to support the administrative, professional, and technical aspects of the project as proposed. The county will provide many of these services as in-kind contributions and as cost-share contributions.

The modified approach recommended above would utilize the same management plan but would require additional funding for the engineering evaluation. The recommended funding presented below reflects the additional funding for engineering evaluation with funding for construction deferred.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$1,000	**$1,000**
Professional & Technical	$25,000	$0	$14,100	**$39,100**
Construction	$75,000	$0	$41,930	**$116,930**
Total	**$100,000**	**$0**	**$57,030**	**$157,030**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate.

Benefit Assessment

The primary benefits to renewable resources are preservation and restoration of storage and fish and wildlife habitat. The project provides measurable benefits in restoration of 30 acre-feet of storage and fish and wildlife habitat restoration. Secondary benefits include resource conservation.

The project, as modified, provides long-term future renewable resource benefits. The project has strong local support for restoration of this recreation facility that is important to the surrounding area.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Beneficial results are primarily related to restoration and improvements of the facility to provide enhanced recreation and fish and wildlife habitat. Minimal short-term, construction-related impacts (from reclamation of the dredged sediments) will be controlled through permitting, landowner access permission, and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 62

Applicant Name	Montana Department of Environmental Quality (DEQ)		
Project Name	Geothermal Assessment and Outreach Partnership		
Amount Requested	$	99,963	Grant
Other Funding Sources	$	11,367	Applicant
	$	18,368	MBMG $15,580, Indirect
	$	4,000	NCAT
Total Project Cost	$	133,698	
Amount Recommended	$	99,963	Grant

Project Abstract (Prepared and submitted by applicant)

Montana has abundant geothermal resources that could provide heat, food, and electricity for the citizens of Montana. Montana's use of these resources has lagged behind other western states. Although a few spa resorts

and greenhouses have tapped some of Montana's geothermal resources over the past century, the vast majority of the energy available from geothermal sources lies undeveloped.

In particular, some of the highest temperatures measured in Montana are in deep oil and gas wells. There is potential to use heat from both producing and nonproducing wells for direct uses or for electricity generation for use near the well sites. While temperature and water chemistry information exists for many of Montana's hot springs and wells, little investigation into the development potential in oil and gas fields has occurred.

The DEQ, Montana Bureau of Mines and Geology (MBMG), and National Center for Appropriate Technology (NCAT), which represent the Montana Geothermal Working Group, propose to investigate up to 15 known geothermal sites in Montana for potential development. The MBMG will conduct data collection and technical evaluation. The NCAT will conduct additional site evaluation and produce a regulatory guide, a geothermal development guide, case studies, and consumer outreach materials. The DEQ and NCAT will coordinate and maintain geothermal websites and work with owners and managers of geothermal resources to develop new projects using the earth's heat.

Today it is more important than ever to use renewable resources available in our state and to use them wisely and to their best advantage. Millions of British Thermal Units (BTUs) of heat are available for cost-effective uses and this project will help Montanans capture that resource.

Technical Assessment

Project Background

Montana has abundant natural resources, including geothermal sites, which could be used to offset current energy prices. The majority of Montana's geothermal resources are underdeveloped, with only a few spa resorts utilizing the resource. Potential uses of Montana's geothermal resources include residential heating, recreation areas, and electricity generation. Little research has been conducted on the potential of this natural resource, which has hindered potential developers.

The U.S. Department of Energy (DOE) funded geothermal data collection efforts in the 1970s and 1980s. In 2003, the DOE funded Phase 1 of a regional program, GeoPowering the West, to catalog and compile data collected in earlier studies. Phase 2 of this program, which involves a cost-benefit analysis of four geothermal technologies, is under way. This grant represents Phase 3 of the GeoPowering the West project. The goal of Phase 3 is to collect and publish data that will result in development of Montana's geothermal resources.

Technical Approach

The preferred alternative to address development of Montana's geothermal resources is to study a subset of geothermal sites throughout Montana and provide publications, brochures, and technical outreach for landowners and potential geothermal developers. Work on this project will begin in July 2007 and conclude in December 2008.

The main objectives of this project are to:

- Collect data necessary to promote geothermal development;
- Generate a publication focused on geothermal project development;
- Produce consumer information brochures; and
- Conduct outreach efforts bringing information to the public and owners and managers of geothermal resources.

Specific tasks to be accomplished:

- Select geothermal study sites;
- Conduct site assessments on selected sites;
- Prepare reports containing information gathered on selected sites;
- Prepare outreach materials; and
- Maintain and update website.

Approximately 15 geothermal sites will be selected, and field sampling (water quality, temperature, flow, etc.) will be conducted to determine the viability of each site for geothermal development. These data will be published using multiple media, including a geothermal publication, informational brochures, websites, and public presentations.

The Technical Assessment lacked detail on the process for selection of data collection sites, and how communication with geothermal landowners and potential developers will lead to future development. The two-year project schedule seems long for the deliverables to be accomplished. Other potential project alternatives and costs were not evaluated by the applicant.

Project Management

A DEQ project manager will oversee day-to day grant management. Based on the qualifications listed in the application, this individual is qualified to manage this project. The roles of the project manager and other key personnel are clearly defined and reasonable given the project scope. The project manager will coordinate with DNRC, integrate public input, and monitor completion of specific tasks conducted by consultants. More planning and specifics need to be provided for this project. This project will be ready for implementation within the next two years.

The project discusses future public involvement, but provided no evidence of current public support. Several support letters from project partners are presented, but letters from the public and current geothermal resource owners are lacking.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$10,542	$0	$11,367	**$21,909**
Professional & Technical	$89,421	$0	$22,368	**$111,789**
Construction	$0	$0	$0	**$0**
Total	**$99,963**	**$0**	**$33,735**	**$133,698**

The budget appears reasonable to fund the project. The applicant provided a detailed breakdown of costs, including consultants. Significant portions of both subcontractors' budgets were devoted to project management. Since DEQ is the applicant and has included project management as part of its budget, this appears to be duplicative. Unit costs used to develop the budget appear reasonable and adequate; however, it appears some program costs were included in the project budget. The match used for this project is primarily University System indirect costs. No other alternatives were considered for this project; therefore, alternative costs were not presented. The project relies solely on this grant.

Since specific project sites were not indicated in the application, the total acreage or total number of users affected by this project could not be determined.

Benefit Assessment

The primary benefits to renewable resources are improved resource development and management. The proposed project could result in measurable benefits of geothermal resource development through better conveyance of information and data to current and potential geothermal resource developers. The proposed project could provide the necessary data for use in developing and managing geothermal resources throughout Montana.

The primary citizen benefit from the proposed project is multiple uses. At the conclusion of the project, projects enhancing recreational opportunities and energy conservation are expected. All listed benefits are relatively long-term and would be quantified through use of data collected as part of this project.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The beneficial results are primarily related to collection of significant geothermal resource data for use in developing future geothermal sites. Minimal short-term, construction-related impacts (from installation of the monitoring equipment) will be controlled through landowner access permission and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $99,963 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 63

Applicant Name	Thompson Falls, City of		
Project Name	Thompson Falls Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	135,000	Applicant
	$	137,250	DW SRF Loan
	$	363,000	TSEP Grant
Total Project Cost	$	735,250	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The city proposes to replace leaky, undersized water mains in two residential areas of Thompson Falls. Existing 1.50 to four-inch steel mains will be replaced with six-inch polyvinyl chloride (PVC) mains.

The project includes:

- Installation of new service lines to the property line and installation of water meter pits for 35 users in the area of the improvements;
- Reconfiguring system pressure zoning to switch a residential area to the upper pressure zone to eliminate low pressure problems; and
- Liquid chlorine storage improvements to comply with the Montana Department of Environmental Quality (DEQ) operation and maintenance (O&M) inspection recommendations.

The improvements will reduce water losses, eliminate low pressure problems, improve system looping to significantly increase fire protection, and provide fire protection to unprotected areas.

The proposed project results in resource conservation, resource management, and citizen benefits:

- Resource conservation benefits through improved efficiency and utilization practices by replacing leaky water mains and installing water meter pits at the property line;
- Resource management benefits through updated metering; and
- Citizen benefits through eliminating low pressure problems (which eliminates backflow/water system contamination potential), providing fire protection capabilities where fire protection does not exist, and providing significant improvement in fire protection in residential areas.

The city has made a concerted effort to update service lines and meters. When water main improvements are completed, service lines are replaced from the water main to the property line, at which point meter pits are installed.

These improvements assure that water distribution and service lines are water tight to the point of metering. This policy was adopted to assure that water that may be lost in private service lines is metered before loss and to provide incentive to users to repair leaking service lines.

Technical Assessment

Project Background

Thompson Falls is in northwestern Montana on the north bank of the Clark Fork River along Highway 200. There are 528 households served by the public water system, which was built in the late 1800s by the Northern Pacific Railroad and acquired by the city in 1936. The city has completed spring, well, and distribution system projects prioritized in its 1996 Water System Master Plan. The public water system was again analyzed in 2005 and 2006 and remaining water distribution needs identified. The project goal is to replace water mains with the most severe low pressure problems and inadequate fire protection.

Technical Approach

The proposed project is a more moderate version of the first phase of the 2005 Master Plan Update and is outlined in the 2006 amendment. Three pressure zones exist in the Thompson Falls public water system, all of which have old, dead-end, small-diameter water mains. The highest priority distribution system needs will be addressed first. Low water system pressures will be eliminated and fire flows will be improved in the selected project areas. Deficiencies at the Ashley Creek disinfection system will also be corrected. The proposed water main replacements are based on a computerized hydraulic analysis that identified problem areas and determined the most effective modifications. The only alternatives identified were no-action and PVC pipe installation. Pipe rehabilitation methods were not considered or discussed because they are not a viable option for undersized mains. Construction is slated to occur during summer and fall 2008. The proposed project is expected to reduce overall water system leakage, although this amount cannot be quantified.

Specific tasks to be accomplished:

- Replace small mains north of Haley Avenue and west of Jefferson Street;
- Connect the area north of Haley Avenue and west of Jefferson Street to the upper pressure zone; and
- Install a six-inch water main from the intersection of Fourth Avenue and Grove Street, north to Fifth Avenue, and then east to Church Street.

Project Management

The management plan clearly details the various tasks necessary to complete the grant-funded project and assigns the tasks to qualified personnel. The engineering firm has already been selected and is very experienced in design and construction of water systems. The city's chief financial officer and grant administrator has worked on other grant-funded projects. The management plan clearly provides for thorough and well-organized contract management. The mayor will have primary responsibility to oversee contractors and consultants. The proposed staff is adequate to successfully manage the proposed project.

Thompson Falls intends to continue public meetings, newspaper articles, and meetings to inform the public of progress. Public input during design and construction will be encouraged at the open city council meetings.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$34,250	**$34,250**
Professional & Technical	$0	$0	$0	**$0**
Construction	$100,000	$0	$601,000	**$701,000**
Total	**$100,000**	**$0**	**$635,250**	**$735,250**

The district seeks both RRGL and TSEP grants for project funding, in combination with its own reserves and a DW SRF loan. The applicant has been successful in receiving grant funds in the past. This proposed funding combination is realistic. If one of the grants is not awarded, either the project scope will be reduced or the DW SRF loan will be increased. The Phase 1 improvements in the 2005 PER were reduced in scope in 2006 to make the current project more economically bearable for the community. The CDBG program was not considered due to recent federal cuts and the high competitiveness of projects on basis of need.

There are 528 households on the public water system that will bear the cost of the proposed improvements with repayment of an SRF loan. A decrease in operation and maintenance costs is probable due to replacement of old mains, valves, and hydrants. The increase in debt service is essentially offset by the estimated decrease in operation and maintenance expenses. Therefore, the new water user rate will be 10 cents less than the current user rate, or $37.25, so the proposed project is considered affordable for the community.

Benefit Assessment

Major resource benefits are attributable to preservation of the existing water system infrastructure by replacement of small diameter mains and looping some pipes. Management of the public water system will also improve with the switch from gaseous to liquid chlorine for disinfection at the Ashley Creek water supply. This is a safer alternative for the operator, due to the inherent hazards of working with chlorine gas and the inadequate safety features of the current chlorination facility. Public support for this project was evident and well-documented. The fire department is interested in improving pressures and fire flows in the upper portions of the distribution system. The top-priority areas for distribution system improvements will be addressed by this project.

Environmental Evaluation

The proposed project consists solely of water main replacement and looping and installation of new fire hydrants. All construction will be conducted within already paved areas or previously disturbed areas. Negative environmental impacts will be short-term and construction-related, such as dust and noise. Overall the project will have positive environmental impacts by replacing old, undersized mains and improving fire flows in currently deficient areas.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 64

Applicant Name	Missoula County Lolo RSID 901	
Project Name	Lolo Wastewater System Improvements	
Amount Requested	$ 100,000	Grant
Other Funding Sources	$ 1,000,000	Applicant
	$ 1,000,000	STAG Grant
	$ 750,000	TSEP Grant
	$ 757,000	WPC SRF Loan
Total Project Cost	$ 3,607,000	
Amount Recommended	$ 100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Lolo RSID 901 (Missoula County) Wastewater Treatment Plant (WWTP) Phase 2 Improvements Project will expand and upgrade existing facilities to achieve the following:

- Provide redundancy for critical treatment plant components to reduce the chance of discharging substandard treated effluent into the Bitterroot River;
- Reduce the number of septic systems installed in Missoula County by expanding available capacity, thereby protecting downstream water quality; and
- Increase capacity of the biological system and provide enhanced nutrient removal.

These improvements include: providing stand-by emergency power generation; modifying and adding facilities to provide advanced nutrient removal membrane bioreactor process and capacity for future conditions; and constructing new systems to comply with increasing chlorine disinfection regulations. The total proposed cost for these improvements is $3,607,000.

This project will benefit Montana's renewable water resources by preserving and protecting water resources from contamination. Recommended improvements will allow the Lolo WWTP to treat wastewater to a much higher standard than currently available. Incorporating the membrane filtration produces an effluent which can be beneficially re-used throughout the community.

Proposed improvements will encourage denser, urban-type development, which will further eliminate septic systems and provide upgrades to the aging community system, thus allowing water to be used more efficiently and less wastefully.

The source of Lolo's drinking water is its sole-source aquifer, an unconfined system which can be contaminated from the surface through septic systems and other pollutants. The ultimate preservation of the quality of the Missoula aquifer and the Clark Fork River Basin relies on reducing effluent not being adequately treated by current systems. Connecting these systems to a central wastewater treatment plant is the only way to protect the waters of the Lolo community.

Technical Assessment

Project Background

The Lolo RSID 901 wastewater system consists of a central collection, pumping, and treatment system. The wastewater treatment plant is a conventional plug flow activated sludge plant with a headworks channel, an equalization basin, aeration basins, secondary clarifier, and chlorine disinfection. Solids handling facilities include an aerobic digester, sludge storage lagoon, and sludge drying beds. Treated effluent is discharged to the Bitterroot River. The treatment system has had exemplary performance meeting permit discharge limits. The facility has consistently reported biological oxygen demand (BOD) and total suspended-solids concentration (TSS) removal

efficiencies of greater than 95 %, resulting in typical effluent concentrations less than 10 mg/l for both BOD and TSS.

The Lolo treatment plant does not have back-up stand-by power generation leaving the facility unable to treat wastewater during power outages. The Preliminary Engineering Report (PER) examined several alternatives for back-up power, including connecting to a separate substation, portable stand-by generator, and an in-place power generator. The existing disinfection system is nearing its capacity and it is anticipated that DEQ is going to require year-round disinfection and elimination of chlorine residual before discharge. To address these concerns, the PER evaluated four alternatives including gaseous chlorine with dechlorination, liquid hypochlorite with dechlorination, open channel ultraviolet disinfection, and closed pipe ultraviolet disinfection. A second influent transfer pump to move wastewater from the equalization basin to the aeration tanks is needed to meet future capacity flow rates and provide redundancy. The aeration basins are nearing capacity and were constructed above ground which results in reduced treatment performance during winter. To provide increased capacity and improved performance the PER evaluated three types of Biological Nutrient Removal (BNR) systems including expanded conventional activated sludge system, a membrane filtration system, and fixed-film media.

Technical Approach

The applicant proposes installation of a 200-kw in-place stand-by power diesel generator. This emergency generator is sized to handle the facilities' existing and future essential power requirements.

Due to upcoming permit requirements, the need for expansion to meet future flows, and safety concerns, an open channel ultraviolet disinfection system will replace the chlorine gas system. UV disinfection was selected since it eliminates the risk for chemical spills, provides greater assurance of compliance with future regulatory requirements, and allows for easier construction implementation. The existing chlorine system will be retained for RAS chlorination and to provide back-up for UV disinfection system.

A second influent transfer pump to match the pump installed in Phase 1 will be installed to meet future capacity flow rates and provide redundancy. This pump transfers water from the equalization basin to the aeration tanks.

To provide enhanced nutrient removal, the applicant proposes to modify the existing plant to provide biological nutrient removal along with a membrane filtration system. To increase the biological capacity of the system, the existing secondary clarifier will be converted into additional aeration tank volume. The existing aeration tanks will be modified to create anaerobic, anoxic, and aerobic zones. In addition, a new membrane tank to house the membrane modules, and an equipment building to house the filtrate pumps, compressors, blowers, and chemical systems will be constructed. The capacity of the existing RAS system would also require expansion. The membrane filter system was selected based on process performance/effluent quality, operability, compatibility with the site for future expansion, and its ability to meet future permit and TMDL requirements.

The treatment facility is designed to accommodate growth in the Lolo area. This will require expansion of district boundaries, including installation of new sewer mains and laterals into adjacent areas. The 2000 Wastewater Facilities Plan discussed expansion and related costs of the collection system; however, those improvements are not part of this project.

The project is proposed to begin design in November 2006 with implementation of the plant improvements scheduled for summer 2007.

Specific tasks to be accomplished:

- Install a 200-kw in-place stand-by power diesel generator;
- Construct an open channel ultraviolet disinfection system;
- Install a second influent transfer pump; and
- Modify existing conventional activated sludge plant to provide biological nutrient removal and add a membrane filtration system.

Project Management

The proposed project involves several funding agencies, a project engineer, a construction manager, and various staff within Missoula County. The Missoula County public works director will coordinate activities and communication between the engineers, contractors, and grant administrator, and will manage the schedule, cost, and quality of the project. The project engineer will be responsible for engineering major project tasks and is the primary contact between the project management team and the contractor. Grant administration for county infrastructure projects will be provided by the Missoula Office of Planning and Grants. The grant administrator will manage the fiscal responsibilities of the grant portions of the project, ensuring that funding agency procedures are followed, reports made as required, budgets tracked, and claims accurately filed and paid. The project management team provides a staff of specialists to perform duties important to the project within their areas of expertise. The project budget allows for funding to support the financial and administrative aspects of the project. The proposed project schedule anticipates completion by fall 2007.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$55,000	**$55,000**
Professional & Technical	$0	$0	$691,400	**$691,400**
Construction	$100,000	$0	$2,760,600	**$2,860,600**
Total	**$100,000**	**$0**	**$3,507,000**	**$3,607,000**

The project budget is complete and includes adequate detail to show that the proposed budget is sufficient to complete the proposed project. The applicant has applied for a $750,000 TSEP grant, a $1 million STAG grant, and plans to contribute $1 million in local funds. The county will also obtain WPC SRF loan funding for $757,000 for the remainder of the project budget. The applicant is eligible for WPC SRF loan funding.

The project budget does not include provisions for the one annual reserve payment required by the SRF program, but the budgeted contingency is adequate to handle this shortfall.

The applicant is a Rural Special Improvement District with the ability to collect charges for debt and operation of its water and sewer systems. The current combined average residential charge for water and sewer service is $43.23 per month. The projected residential rate for water and sewer is $51.03 per month, and will affect 785 households. The combined average water and sewer rate of $51.03 is 66% of the Department of Commerce's target rate. Therefore, the project appears affordable for residents.

Cost estimates were provided for the alternatives considered for each of the project components and were used to help determine preferred alternatives. Engineering costs are within the typical range for a project of this magnitude.

Benefit Assessment

The project has primarily resource preservation benefits. Installation of the ultraviolet disinfection system will improve and preserve water quality in the Bitterroot River. Construction of the biological nutrient removal treatment facility with membrane filtration will provide additional treatment capacity and produce a high-quality effluent protecting and preserving downstream uses on the Bitterroot River. Installation of a back-up power generator plant will enable the treatment plant to provide adequate treatment during extended power outages protecting uses and aquatic life in the river. Expansion of the treatment capacity will enable the facility to accommodate growth in the Lolo area, encouraging denser, urban-type development which will further eliminate use of septic systems. This will help preserve the quality of groundwater, Lolo's drinking water source. Finally, improvements to the wastewater system will help preserve the district's central wastewater collection, pumping, and treatment system.

A secondary resource benefit is management benefits associated with installation of back-up power and a second influent transfer pump to provide redundancy. There are no measurable resource development or conservation benefits. Multiple-use benefits include benefits to fish and wildlife from the reduced nutrient load to the river. Also, the recreational value of the river will be improved by better wastewater treatment.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through permitting and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 65

Applicant Name	Chester Irrigation District		
Project Name	Chester Irrigation Project (CIP): Phase 2, Water Service Contract Application		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	1,706	Bear Paw Development Corporation, In-Kind
	$	30,000	Chester Irrigation, Fees and In-Kind
	$	15,000	DNRC Irrigation Development Grant
	$	18,500	DNRC Water Development Program, In-Kind
	$	50,000	Growth Through Agriculture Grant
	$	5,300	Montana Department of Agriculture, In-Kind
	$	12,150	USBR, In-Kind
Total Project Cost	$	232,656	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The purpose of this Renewable Resource Grant and Loan (RRGL) application is to provide funding to the Chester Irrigation District so it can commence negotiations with the U.S. Bureau of Reclamation (USBR) to obtain a water service contract for the CIP. The USBR has indicated that, depending on its level of involvement, the cost of meeting administrative, environmental, and regulatory requirements could range from $1.4 million to $3.7 million. If the CIP is able to move forward, the remainder of the funding to meet the USBR's requirements could be funded by a combination of fee assessments to the members of the Chester Irrigation District; long-term, low-interest loans; federal appropriations; and state and federal loans and grants.

This grant would enable the Chester Irrigation District to move forward with Phase 2 of the Chester Irrigation Project. Phase 1, the Preliminary Engineering Design, is scheduled to be completed in September/October 2006. Phase 1 was funded by a $100,000 Renewable Resource grant by the 2005 Montana Legislature. At a cost of $1,800 to $2,000 per acre, total cost of the project is estimated at $72 million to $80 million.

The ultimate long-term goal of the Chester Irrigation Project is to provide opportunities for economic development and enhancement of the physical and human environment through development of an irrigation project. This would be achieved by production of high-value crops and development of value-added businesses for the Chester/Liberty County area, the north-central Montana region, and the state of Montana while, at the same time, carefully managing the renewable resources involved in the project.

Ideally, the Chester Irrigation Project could serve as a model for private/state/federal partnerships for development of other irrigation projects in Montana. Development of these types of partnerships would require a substantial investment and a long-term commitment on the part of the private, state, and federal sectors for the development and enhancement of Montana's renewable resources.

Through use of Best Management Practices (BMP), water, air, soils, fish and wildlife, and human renewable resources would benefit from development of this project.

Technical Assessment

Project Background

The need for this project results from continuing drought and a dwindling local economy in the north- central region of Montana. Lake Elwell and Tiber Dam were constructed by the USBR in 1956 as part of the 1944 Flood Control Act and known as the Lower Marias Unit of the Pick-Sloan Missouri River Basin Program. The intended purpose of this program is two-fold: flood control and to provide water for irrigation. Although this facility has an adequate supply of water to irrigate 127,000 acres, the irrigation features were not included in the project because an irrigation district had not been formed to negotiate the repayment contract with the USBR. Irrigation projects developed from Bureau of Reclamation programs are eligible for Pick-Sloan power. Use of Pick-Sloan power would enhance feasibility of this project. The Chester Irrigation District intends to develop a large-scale irrigation project that will cover 20,000 to 40,000 acres of currently dry land farm land with pivot irrigation. Water for this project will be diverted from Lake Elwell and delivered to the proposed acres via pipeline.

This project is broken into two phases. Phase one was a feasibility study and preliminary engineering report. Phase 2 involves negotiations with the USBR for a long-term water service contract. The Bureau of Reclamation has multiple costs associated with the negotiation of long-term water contracts. The costs can be broken into two general categories: (1) costs associated with compliance with NEPA and related federal laws and policies, and (2) costs associated with the actual negotiation of the contract. Compliance with NEPA and related federal law and policies is required before a long-term water service contract can be executed by the USBR.

Other alternatives considered by the Chester Irrigation District were no action and alternate funding. The district did not consider the no action alternative. There is no beneficial result, either environmental or economical, in no action. The alternate funding alternative considers the use of all federal dollars, which would result in additional studies and research, thereby increasing the overall project cost.

Technical Approach

The project goal is to conserve, develop, manage, and preserve currently underutilized water and land resources. Phase 2 of the CIP involves securing a long-term water service contract from the USBR. CIP has outlined the steps necessary to complete this contract.

Specific tasks to be accomplished:

- Commence formal negotiations with the USBR;
- Submit a formal request to the USBR to obtain a water service contract;
- Submit the information required by the USBR to obtain a water service contract;
- Submit the plan for the proposed diversion, conveyance routes, and lands to be irrigated;
- Negotiate a memorandum of understanding with the USBR to obtain the water service contract;
- Commence discussions with the USBR for compliance with the National Environmental Policy Act;
- Begin addressing federal and state environmental and regulatory issues, as funding allows; and
- Submit final report to DNRC.

Two alternatives, including the no action alternative, were considered for the project. The preferred alternative was selected based on cost. Environmental concerns were not considered in the selection of the preferred alternative, as no environmental impacts are associated with securing a water service contract.

The CIP, LLC, is in the process of forming an irrigation district with the required federal tax identification number.

Project Management

The CIP will be managed by a combination of the Chester Irrigation District board of directors, the CIP steering committee, and a project coordinator. Five of 40 landowner members of the irrigation district are members of the steering committee. The role of the steering committee is to provide general guidance and supervision to the project. The steering committee will be responsible for interviewing and selecting consultants for this project. The chairman of the board of directors will be responsible for signing documents. The project coordinator will develop the scope of work and other documents as needed for the interviewing and hiring of consultants. The project coordinator will coordinate activities with the state and federal agencies for the completion of a contract service agreement.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$6,000	$0	$0	**$6,000**
Professional & Technical	$94,000	$0	$132,656	**$94,000**
Construction	$0	$0	$0	**$0**
Total	**$100,000**	**$0**	**$132,656**	**$232,656**

The applicant did not provide a detailed breakdown of unit costs.

The applicant makes note of several anticipated in-kind funds to be spent on Phase 2, water service contract negotiations with USBR. To date funds have not been secured from these sources. These in-kind funds were not accounted for in the budget form of the application (see other funding sources).

A no action alternative and an alternate funding alternative were suggested. There is no cost associated to the no action alternative; the alternate funding alternative involves complete funding by the USBR. To limit federal involvement and additional fees, this alternative is not considered an option.

The project consultant states that the CIP would initiate only those steps involved in the negotiations with the USBR that it could complete with the available funding.

Benefit Assessment

The primary benefits to renewable resources are resource management and resource development. The proposed project would result in immediate benefit to members of the Chester Irrigation District; however, the economic benefit of a large-scale irrigation project would be felt throughout the Liberty County/Chester area and north-central Montana. Tiber Dam and Lake Elwell were created by the USBR as part the 1944 Flood Control Act. Two of the primary intended purposes of the dam and resulting reservoir were flood control and water storage for large-scale irrigation projects. Only a small percentage of the water held in Lake Elwell is used for irrigation. This project would allow for management and development of an intended purpose of the water resource created by Tiber Dam.

In addition, a secondary benefit from the proposed project would be multiple use. The proposed project would result in enhanced vegetation and habitat for upland game birds, big game, and numerous nongame species. The project management plans to work with Montana Department of Transportation to develop or enhance wetlands in the project area. Preliminary contact has been made with wildlife and hunting groups.

Environmental Evaluation

No environmental impacts are associated with Phase 2. Any environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The beneficial results are primarily related to irrigation of current dry land crops. Minimal short-term, construction-related impacts (from installation of pump

sites and the delivery system) will be controlled through permitting, landowner access permission, and proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon approval of a project scope of work, administration, budget, and funding package.

Project No. 66

Applicant Name	Pinesdale, Town of		
Project Name	Pinesdale Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	450,000	CDBG
	$	115,000	RD Grant
	$	345,000	RD Loan
	$	750,000	TSEP
Total Project Cost	$	1,760,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The water system for Pinesdale has been constructed over time with minimum planning and no consideration for fire protection, leading to serious deficiencies with the existing public water system.

During the 2000 wild fire season, fires burned to the edge of town, destroying four structures and requiring evacuations. During the fires, the water treatment plant was shut down so that raw water could be diverted to the irrigation system to help meet fire-fighting needs. Because of the inadequate water storage system, the town had little water in reserve. Because of the very limited storage system, undersized water mains, and limited fire hydrants, the town had no residential fire protection. Had the fire advanced much farther to the east, the entire town could have been lost.

The Pinesdale water system currently has the following deficiencies:

- Inadequate water storage; and
- Inadequate fire protection storage.

The town's current water supply is inadequate to supply the growing town's residential and fire protection needs. The town has water rights from Sheafman Creek. The town also has three wells: two that supply irrigation water, and one for household use. The town recently drilled 40 sites in an attempt to secure another well, but has been unsuccessful in finding water.

The average demand is 114,500 gallons per day; with a fire flow demand of 2,500 gallons per minute for a duration of two hours, the required storage would be 414,500 gallons. Existing water storage facilities are inadequate.

The distribution system experiences pressure extremes. Some areas in the system have very high pressures, while other areas have very low pressures.

System problems that need to be addressed within the water distribution system include:

- Lack of fire hydrants;
- Undersized mains to supply water to fire hydrants; and
- Dead-end water mains.

Because of budgeting restrictions, the town will complete this project in two phases.

Phase 1 is immediate and will involve the following corrections to the water system:

- Removal of the existing southwest tank;
- Installation of a new tank adjacent to the existing water treatment plant;
- Installation of pressure-reducing valves throughout the distribution system;
- Installation of a water line from the new tank to the location of the existing southwest tank;
- Addition of three new hydrants to the system; and
- Installation of a water metering system.

Phase 2 will be completed in the future, and involves the following corrections to the water system:

- Replacing four-inch mains with six-inch or larger mains; and
- Adding blow-offs to dead-end water mains.

Technical Assessment

Project Background

The incorporated town of Pinesdale operates and maintains a public water system in the community utilizing both surface water and groundwater as sources. The system serves 772 persons which is projected to grow to 942 persons in the next 20 years. The system lacks adequate storage to fight fires and the water mains are undersized to deliver the necessary volume of flow required for fire protection. The town is in a wooded setting and the fires of 2000 severely threatened the community. The topography of the town has resulted in areas of the distribution system having unacceptably high or low pressures. Individual service connections are not metered.

Technical Approach

Due to the extent of the problems with the water system, a phased approach was utilized in the engineering analysis to create affordable project components. The first phase of the master plan is to construct a new storage tank; address pressure problems with new mains and elimination of an existing storage tank; and install pressure relief valves, water meters, and blow-off valves. A limited portion of the undersized mains will be replaced and three hydrants installed. Future projects include installation of new water mains to provide adequate water service to fight fires to protect critical assets in the community, such as the local school.

It appears that the primary goal of the project is to provide fire protection for the community, yet the PER did not consider upgrading the entire distribution system to fully serve the community. This was excluded due to cost. The selected project provides limited benefit for fire protection for portions of the community, with the primary intent to provide sufficient water to fight fires at the school. Only three new hydrants are provided and no hydrants are indicated for the connecting main between the new storage tank and the side of town with low pressure. Other alternatives for improvements to the distribution system should have been evaluated in the PER. Supporting documentation in the PER was limited. The applicant anticipates that the project will be designed in the winter of 2007, bid in early spring 2007, and be constructed during the 2008 season.

Specific tasks to be accomplished:

- Install 500,000-gallon on-grade steel tank, remove existing tank, and modify control system;
- Install approximately 160 lineal feet of four-inch water main, 2,440 lineal feet of eight-inch water main, and 3,920 lineal feet of 12-inch water main with valves and appurtenances;
- Install 10 pressure-reducing valves; and
- Install approximately 140 new service meters including 70 meter pits.

Project Management

The proposed project management plan indicates that local and professional staff will be used to administer and manage the proposed project from design through completion and close-out. Public involvement was discussed

and plans for keeping the public involved in future stages of the project development process were discussed. A complex financial package is being pursued to support the first phase, and project administration will be demanding. The budgeted amount for professional services for project administration may not be sufficient.

Project planning has been completed and the project appears ready for design in 2007 and ultimate completion within the two years. The applicant's public involvement program has been very successful through the planning phase; although there is no discussion of continued public outreach through design and construction, it is presumed that the town will continue to seek input from users throughout the process.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$60,000	**$60,000**
Professional & Technical	$50,000	$0	$201,300	**$251,300**
Construction	$50,000	$0	$1,398,700	**$1,448,700**
Total	**$100,000**	**$0**	**$1,660,000**	**$1,760,000**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a fairly detailed breakdown of unit construction costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Finance costs are not properly stated; the budget appears to have unnecessary loan fees and loan reserves for the RD loan which add to the cost. RD allows the deposit of the loan reserve to be built up over time with the coverage collected; therefore the reserve does not need to be capitalized. The proposed user charges for system operation and debt payment appear excessive given the project budget.

The town's funding strategy appears reasonable with TSEP, CDBG, and RD grant funds in addition to the DNRC grant request. RD will also be utilized to provide loan funding for the project, with 40-year loan terms.

Benefit Assessment

Water meters will promote conservation of water in the community and the new mains may reduce leakage. Energy for pumping and chemicals used for treatment and disinfection will also be saved through reduction in water consumption. The project will promote better management of the use of water resources for the potable water supply. The project will also allow for development of water resources as required for domestic, commercial, and institutional use in the community.

The project will not provide or enhance natural resource-based recreation. Limited benefit may accrue to wildlife with improved fire protection in the area. The locale is wooded and severe fires have occurred in the past. An improved water system and new storage tank will help the community fight fires and limit the fires from spreading to contiguous wooded areas. No jobs will result directly from this project. The project has enjoyed very good support from the local public.

Environmental Evaluation

Most of the possible environmental impacts associated with this project were evaluated. The proposed work will require crossing three streams with water mains; one of the streams has been identified as potential habitat for bull trout. Proper precautions must be observed to prevent destruction of this habitat. The water storage tank should allow for better protection of the wooded areas throughout the community through improved fire-fighting capability. Minimal short-term, construction-related impacts will be controlled through proper construction observation and control.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 67

Applicant Name	Ekalaka, Town of		
Project Name	Ekalaka Water and Wastewater System Improvements		
Amount Requested	$	100,000	Grant
	$	3,500	Applicant
Other Funding Sources	$	450,000	CDBG Grant
	$	152,869	RD Loan
	$	706,369	TSEP Grant
Total Project Cost	$	1,416,238	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Town of Ekalaka is submitting a grant application to the Montana Department of Natural Resources and Conservation (DNRC) for a project to replace the following water and wastewater deficiencies:

- Replace water and sewer mains that run parallel down Main Street of Ekalaka;
- Update controls in the main lift station;
- Replace a single-pump lift station;
- Replace the water main that runs from the storage reservoir to the town; and
- Replace an old fire hydrant made of four-inch cast iron lead.

The project presented in this DNRC application represents one of many long-term, comprehensive solutions to correct defined deficiencies and provide renewable resource benefits.

The renewable resource benefits to this project are:

- Replacing the water mains that are 70-plus years old will save water. (Page 1 of the Preliminary Engineering Report [PER] notes several water main breaks in the last two years and that the mains being replaced are made of cast iron and are severely pitted.)
- Replacing the sewer mains that are 70-plus years old will alleviate ground contamination. (Page 2 of the PER notes a television report that two tapped service lines intruded into the sewer main and at least 200 feet of the existing main spalling.)
- Replacing single-pump lift station will alleviate surface water contamination. (Page 2 of the PER notes that this lift station has had several float system problems causing sewage to back up and overflow into Russell Creek and back up into two homes.)
- Replacing controls in the main lift station will help in management efficiency and again alleviate contamination due to sewer blockage and overflows. (Page 2 of the PER documents several false alarms with the paging system and sewer back-ups that have resulted in several insurance claims.)
- Updating the electrical and control systems in the lift stations will free maintenance workers for other things. (Uniform Environmental Checklist, No. 15, Social Services.)
- Updating the electrical and control systems in the lift stations will improve the efficiency of both stations. (Uniform Environmental Checklist, No. 18, Energy Resources.)
- Replacing the existing four-, six-, and eight-inch cast iron water mains to six- and eight-inch PVC water mains and replacing one four-inch cast iron hydrant to a six-inch PVC will increase water flows, a positive impact for fire protection. (Uniform Environmental Checklist, No. 24, Fire Protection.)

Technical Assessment

Project Background

The incorporated town of Ekalaka operates and maintains a centralized wastewater collection/treatment system, and a centralized drinking water system serving approximately 410 people. The original water and wastewater

systems were installed in the mid-1930s and the town has been vigilant in making improvements to both systems to address problems and implement standard technologies. Since 2002, the town has experienced four breaks in the original cast iron water mains that serve the downtown area. Addressing these main breaks has been costly, time-consuming, and risky due to the deteriorated nature of the original water mains. Since 2002, the town's main sewage lift station has had numerous control system failures, two of which have resulted in back-ups into residents' homes. The town also has a single-pump lift station that has failed a dozen times since 2002. Seven of these failures have resulted in sanitary-sewer-overflows (SSOs) into Russell Creek which flows through the town. A sewer main in the downtown area was installed at an insufficient slope; inadequate manhole spacing and shallow depths are other concerns.

Technical Approach

The project goal is to address the water main and sewer main problems by replacing problematic sections of the original cast iron water main and reinstalling 1,140 lineal feet of sewer main made of modern materials. The town also intends to replace the main sewage lift station control system and the entire single-pump lift station to enhance dependability and efficiency.

The alternative evaluation consists primarily of various combinations of water and sewer projects. It appears that the preferred alternative was selected based on affordability and addressing as many infrastructure problems as possible. The no action alternative was considered and rejected. The recommended alternative consists of replacing approximately 3,640 lineal feet of cast iron water main from downtown to the town's twin 100,000-gallon storage tanks, reinstalling approximately 1,140 lineal feet of sewer main in the downtown area, replacing the main lift station control system, and totally replacing the town's single-pump lift station. Floodplain and wetland issues will require further investigation as the project proceeds. The applicant anticipates that the project will be designed in winter 2007, bid in early spring 2007, and be constructed during the 2008 season.

Specific tasks to be accomplished:

- Replace approximately 3,640 lineal feet of four-inch, six-inch, and eight-inch diameter cast iron water main with four-inch, six-inch, and eight-inch diameter C900 PVC from downtown to the town's storage tanks. This task includes one new hydrant and service line connections;
- Replace and reroute approximately 1,140 lineal feet of four-inch and eight-inch sewer main with new PVC pipe in the downtown area;
- Replace the main sewage lift station control system with a modern system that enhances dependability and eliminates back-ups; and
- Entirely replace the town's single-pump lift station with a modern lift station that enhances dependability and eliminates back-ups.

Project Management

The proposed project management plan identifies adequate and capable staff to successfully administer and manage the proposed project from planning through completion and close-out. The project management plan provides for professional management of agreements and contracts associated with the proposed project, although the budget lacks legal costs for proper review of all agreements.

The project planning has been completed and the project appears ready for design in 2007 and ultimate completion within the two years. The applicant's public involvement program has been very successful through the planning phase; although there is no discussion of continued public outreach through design and construction, it is presumed that the town will continue to seek input from the users throughout the process.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$10,000	$0	$74,100	**$84,100**
Professional & Technical	$0	$0	$231,808	**$231,808**
Construction	$90,000	$0	$1,006,830	**$1,096,830**
Total	**$100,000**	**$0**	**$1,312,738**	**$1,412,738**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a fairly detailed breakdown of unit construction costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Over 5% of project costs are for administration of funding programs which appears high.

The town's funding strategy appears reasonable with TSEP, CDBG, and RD loan funds in addition to the DNRC grant request. The other funding programs were contacted and the applications were made in accordance with the town's schedule. The RD program was contacted and it appears that Ekalaka will be a good candidate for the anticipated loan. Debt service was properly calculated for a 40-year loan.

Benefit Assessment

Primary benefits to renewable resources will be conservation through reduction of leakage from the town's water mains, increased management capability for the town's wastewater (avoiding back-ups into residents' homes), and preservation of the quality of Russell Creek through reduced SSOs.

In addition, secondary benefits from the proposed project include habitat and recreational benefits through improvements to Russell Creek. The proposed project would result in reduced SSOs into Russell Creek and thus, enhancement of Montana's fisheries and wildlife habitat. All of these benefits are long-term and quantifiable.

Environmental Evaluation

Most of the possible environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. The applicant did not fully evaluate possible impacts to surface waters, floodplains, or possible wetlands, although minor impacts are expected. Minimal short-term, construction-related impacts will be controlled through proper construction observation and control.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 68

Applicant Name	Sweet Grass County Conservation District (SGCD)		
Project Name	West Boulder Point of Diversion Rehabilitation Project		
Amount Requested	$	44,500	Grant
Other Funding Sources	$	525	Boulder River Watershed Association, In-Kind
Total Project Cost	$	45,025	
Amount Recommended	$	44,500	Grant

Project Abstract (Prepared and submitted by applicant)

The SGCD, on behalf of the Boulder River Watershed Association (BRWA), requests $44,500 in funding for rehabilitation of a diversion structure on the West Boulder River south of Big Timber. Like most diversion structures in the district, this structure is relatively small and shared by multiple users. The structure supplies a canal five miles long that irrigates 110 acres of crop land and 50 acres of pasture land. Crops are small grains rotated in every five to eight years, with alfalfa the permanent cover crop. The pasture land is grazed by cow-calf pairs. For six months of each year, the diversion also provides livestock water to approximately 50 cow-calf pairs grazing native range land.

Due primarily to design deficiencies, the structure requires extensive maintenance that negatively impacts the integrity of the West Boulder River. Heavy equipment is frequently used in the channel to remove woody debris and accumulated sediment. These problems are the result of poor orientation of the structure to the main flow and deteriorated sediment transport capacities in the channel. Short-term repairs performed to maintain grade at the structure exacerbate sedimentation problems and are at risk of failure.

SGCD proposes to obtain a grant to improve the infrastructure on the site that will provide long-term function with greatly reduced maintenance. It is important to note that the West Boulder River watershed has an extensive system of such small structures, many with similar maintenance problems.

This project warrants funding because:

- Its visibility and representation of problems in the district make it an excellent local demonstration project for renewable resource management;
- The project will benefit Montana citizens by greatly reducing in-channel disturbance to valuable fish habitat; and
- It will result in a total savings in maintenance costs of approximately $3,575/year or $71,500 over 20 years.

Technical Assessment

Project Background

The problem involves a poorly designed irrigation diversion headgate on a side channel of the West Boulder River. Over time, the side channel has partially filled with sediment. Flows are commonly too shallow to satisfy the diversion requirements. Frequent maintenance (often involving multiple daily visits) during the irrigation season is required to maintain flow to the diversion structure. About twice a year, heavy equipment is used to remove accumulated sediment and woody debris from the side channel. In addition to increased operation and maintenance costs, such maintenance also has adverse environmental impacts to the stream.

The general objective of the proposed project is to reconstruct the headgate in a new position and to modify the configuration of the side channel to reduce maintenance and environmental disturbance. The goal is to re-establish the location and orientation of the headgate relative to the flow patterns through the side channel so that sediment and woody material are transported past the structure. The alternatives considered included: (a) no action;

(b) relocating the headgate and slightly modifying the side channel; (c) relocating the headgate and significantly modifying the side channel; and (d) relocating the headgate and diversion to a point adjacent to the main channel and installing a flow direction structure in the river.

Technical Approach

The preferred alternative involves four components: relocating the headgate perpendicular to flow, reconstructing a V-shaped grade control weir, installing a series of three boulder flow deflectors in the side channel, and placing a debris deflector at the head of the side channel. The specific goals and objectives of the project are to improve the approach and exit conditions to the headgate so that sediment and woody debris are transported through the system rather than accumulating at the irrigation diversion structure. According to the applicant, the preferred alternative was selected because it will require the least amount of maintenance, offers long-term structural stability, is the least costly, and limits construction to the side channel, thereby reducing short-term impacts.

Primary environmental impacts involve short-term channel disturbance associated with construction activities. Appropriate construction methods can be used to minimize such disturbance. Any long-term beneficial environmental benefits will be a result of the reduced in-channel maintenance requirements. The project would be designed and implemented in summer and fall 2007.

Specific tasks to be accomplished:

- Design;
- Permit acquisition;
- Site dewatering;
- Headgate installation;
- Weir and deflector placement; and
- Revegetation.

Project Management

The coordinator for the Boulder River Watershed Association will manage the project. The BRWA coordinator is a part-time employee of the CD. The coordinator will be responsible for oversight of the design and construction contractors and for public relations with the project stakeholders. The applicant does not provide the pertinent professional experience of the coordinator. The SGCD administrator will provide administrative assistance by managing the grant, compiling budgets, reviewing contractor invoicing, and reporting to the DNRC. The design consultant will coordinate design and construction of the project. Given the relatively small size and complexity of the project, the project management tasks are fairly straightforward.

The role of the project manager is generally described in the grant application and is appropriate given the budget allocations and project complexity. The project budget allows for funding to support the financial and administrative aspects of the project, which are approximately 10% of the total project. To date, planning for the proposed project has been completed. Design and construction are ready to proceed with the availability of funding. Construction will likely be completed in fall 2007.

The applicant's public involvement plan is not described in detail. The applicant mentions working with affected ditch users and adjacent landowners through the design and implementation process. The applicant expects to use this work as a demonstration project, to show irrigators the benefits of well-designed and properly located diversion structures.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$4,045	$0	$0	**$4,045**
Professional & Technical	$12,511	$0	$525	**$13,036**
Construction	$27,944	$0	$0	**$27,944**
Total	**$44,500**	**$0**	**$525**	**$45,025**

This budget appears sufficient and reasonable to fund the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. No costs of the various alternatives are provided, but justification for the proposed action as the most appropriate alternative in the long run is provided and is reasonable.

No funding irregularities or areas of concern appear. The applicant does not assess fees. The irrigation ditch supports 110 acres of hay crop land and 50 acres of irrigated pasture. It is estimated that over 20 years, irrigators will save over $70,000 in reduced maintenance costs. Matching funds are identified and secure. All other costs will be covered by the grant. No other funds are required to implement the project. The ditch users will provide maintenance of the diversion following construction.

Benefit Assessment

The primary benefit to renewable resources is improved efficiency for use of the existing water resource. This benefit would be measured in the improved diversion of water for beneficial use and the reduced expenditures for maintenance. In addition, secondary benefits from the proposed project include a reduction of in-channel disturbance and an unquantifiable benefit to aquatic resources. The above resource benefits will continue for the long-term, although the degree of benefits is not quantified.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts may include increased turbidity from in-channel construction. These temporary impacts will be controlled through proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $44,500 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 69

Applicant Name	Livingston, City of		
Project Name	Glass Pulverizer for the City of Livingston		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	126,804	Applicant, Cash
Total Project Cost	$	226,804	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The City of Livingston is requesting a Renewable Resource grant of $100,000 to purchase a glass pulverizer, construct a building in which it would operate, and assist in implementation of a glass reuse program. The city has committed $126,804 to support the project.

The project will improve Livingston's ability to manage the amount of solid waste disposed of in landfills. The project is designed to divert, at minimum, 191 tons of glass per year from landfills and reuse it locally as glass cullet for infrastructure projects.

The city is proud to put forward a project that implements efforts to achieve solid waste management goals detailed in the Montana Integrated Waste Management Act (75-10-801, MCA) and the Montana Integrated Solid Waste Management Plan. The overall goal of the act and the plan is to reduce, by 25 %, the volume of solid waste either disposed of in landfills or incinerated.

The Montana Integrated Solid Waste Management Plan specifically states that re-use is preferred over recycling, landfilling, and incineration as a solid waste management method. The plan details the following re-use goal for Montana: "Every community will have an active re-use program."

By re-using glass bottles, jars, windshields, windows, dishware, and other glass products in the form of glass cullet, a material similar to natural aggregate, the city will decrease the need for aggregate mining. The compactability and permeability of glass cullet gives it technical advantages over gravel, especially for drainage systems, base course materials, and backfill applications. The filtration rate of glass cullet makes it an optimum component in reducing non-point source pollution. By decreasing the need for aggregate mining and reducing non-point source pollution, the glass re-use program will also protect fisheries and wildlife habitat.

Technical Assessment

Project Background

Adversely affected by the closing of the Park County incinerator in 2005, Livingston currently transports its solid waste by rail to the Valley View Landfill near Helena. Both Park County and the city of Livingston are experiencing unprecedented increases in population, and solid waste management has become critical. As a result, the city hired a solid waste consultant to study alternatives, and one of the conclusions was that recycling efforts must be improved.

Livingston participates in a recycling program. The program is administered by Headwaters Cooperative Recycling, Inc., and consists of collection stations for recyclable products at various locations. Glass collection at these stations is limited primarily to collection of glass jars and bottles. Many businesses do not participate in the program because of the difficulty involved with transporting materials to the few collection sites. Also, glass pulverizing is limited due to the size of the mobile equipment available to Livingston through this program.

Major alternatives considered included sale and re-use of glass containers, continued use of the mobile glass pulverizer operated by Headwaters Cooperative Recycling, Inc., and the preferred alternative-consisting of the construction of a small glass pulverizing facility for Livingston.

Technical Approach

The Glass Pulverizer for the City of Livingston Project includes four distinct phases for which alternatives were considered. The phases are collection, treatment, site selection, and re-use. The study concluded that feasible methods for collection were drop-off collection, curb-side collection, and a combination of both methods; the preferred alternative is a combination of drop-off and curb-side collection. Treatment alternatives considered were continued use of the mobile unit and construction of a small plant for Livingston. Because the current mobile unit is frequently unavailable, the applicant proposes to construct its own facility. Factors that contributed to selection of the preferred site include proximity to city shops, area zoned for industrial use and development, and availability

of electrical power. Also, the preferred location presents no visual or other adverse environmental impacts to the community. Recycling was chosen as the preferred alternative over re-use primarily because of the distance to any sizable market capable of buying, rehabilitating, and re-using glass containers.

The proposed project provides primarily resource management benefits. The project will result in production of a glass substitute for gravel aggregate, thereby reducing the long-term effects of aggregate production and also reducing the amount of nonbiodegradable materials that must be disposed of at a landfill if not re-used or recycled.

Specific tasks to be accomplished:

- Procure services of an engineering firm to design the project and prepare bid documents;
- Bid the project in accordance with applicable statutory requirements;
- Purchase an eight- or nine-horsepower glass pulverizer;
- Construct a building large enough for the installation of the glass pulverizer; and
- Install the glass pulverizer within the building to provide a complete glass-pulverizing facility.

Livingston is growing rapidly and ships solid waste via rail over 100 miles to a landfill near Helena. It is important that the project be constructed as soon as funding will allow. Procurement of engineering services and subsequent design will occur in fall 2007 with construction beginning early in 2008. Local financial contributions have been reserved for construction of this project.

Project Management

The city of Livingston has adequate staff to effectively manage construction of this project. The public works director will manage construction of the project, and the city's financial officer will oversee financial matters. An engineer will be hired to design the project, and the project will be bid and constructed by a contractor in accordance with statutory requirements. The public has been kept informed during development of this project, and the community is anxious to meet its obligations to reduce landfill loading and handle its solid waste in an environmentally positive manner.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$0	**$0**
Professional & Technical	$0	$0	$37,456	**$37,456**
Construction	$100,000	$0	$89,348	**$189,348**
Total	**$100,000**	**$0**	**$126,804**	**$226,804**

Based on the cost estimate provided in the application, the budget is sufficient to fund the proposed project. Unit costs used to develop the estimated cost of construction are reasonable, and a 10% construction contingency is included in the cost estimate. Because no loan is required and the project will be managed by salaried municipal staff, no administrative costs are directly attributable to this project.

The cash contribution from the applicant is from unrestricted funds within the Solid Waste Enterprise Account; accordingly, the project does not require a loan, and the $14.65 per month average residential solid waste fee will not increase.

Benefit Assessment

The primary renewable resource benefit associated with this project is resource management. By constructing a glass pulverizer, Livingston is managing its solid waste and associated impacts to landfills in the best financial and environmental manner. The project also provides other benefits. Although production of glass cullet for use as a gravel aggregate substitute does not affect large quantities of material, the benefits are important, and they will increase as demand for aggregates increases in the Livingston area. The long-term effect will be preservation of a

land resource resulting from fewer open-pit gravel operations; the lasting effects of these operations are obvious in areas experiencing rapid growth where open-pit operations left unreclaimed are now unusable, weed-infested areas.

The project is supported by local citizens and businesses, local governments, and the Montana Department of Environmental Quality (DEQ) as evidenced by letters of support submitted with the application.

Environmental Evaluation

Short-term adverse environmental impacts such as dust and noise will occur during construction. These will be minimal, since the construction area is small and within an industrial area. Long-term environmental impacts are beneficial and include preservation of land resources by reducing landfill requirements and adverse impacts associated with typical open-pit gravel operations.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 70

Applicant Name	Montana State University (MSU)		
Project Name	Channel Response Assessment for the Upper Blackfoot		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	41,000	Applicant
Total Project Cost	$	141,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Helena National Forest (HNF) has committed to fully restoring ecosystem function to the floodplains in the Upper Blackfoot Mining Complex. As the focus now turns to concerns over the fate of Mike Horse Dam and the ensuing restoration, it is more important than ever to fully understand the nature of the stream system. Upstream and downstream from Mike Horse Dam, floodplain ecosystem function is the product of centuries of natural variation in hydrology followed by decades of human changes in flow regime. The goal of this project is to assess the ecological response potential of floodplains associated with Mike Horse Dam. Two questions pertain to the Upper Blackfoot: (1) How can stream ecosystem restoration be maximized; and (2) how can risk of further contamination be minimized? The temporal and spatial contexts of the stream reaches will be used to classify their potential ecological response to changes in flow regime induced by dam construction, breach, and hazard reduction. Historic aerial photographs from 1938 (pre-construction), 1961 (post-construction), 1966 (pre-breach), 1979 (post-breach), 1995 (post-breach), and 2005 (pre-removal) will be used to track channel, floodplain, and riparian vegetation cover. Topographic surveys of flood stage indicators (flood scars and deposits) and valleywide cross sections will be used to model Hydraulic Engineering Center-River Analysis System (HEC-RAS) past hydrologic events with step backwater and time varying techniques. From the historic ecological response classification, responses will be predicted to the proposed dam hazard reduction. To test this prediction, topographic, hydrologic, and biological data will be collected at the same locations before and after action on Mike Horse Dam. An evaluation of floodplain ecological response based on its spatial and temporal context within the watershed will distinguish dynamic reaches from stable reaches. Armed with this information, decision makers can maximize restoration potential and minimize risk to contaminated sediment.

Technical Assessment

Project Background

The proposed project involves undertaking a study on the channel and floodplain downstream of the Mike Horse Dam to assess the ecological response potential of the floodplain to anticipated change in the streamflow regime resulting from dam removal. The goal of the project is to provide information that can be used to guide restoration of the stream and floodplain. This project was proposed independently of the remediation design work that will be undertaken by ASARCO and the USFS and that is under public review through the Draft Engineering Evaluation/Cost Analysis (EE/CA) at the Upper Blackfoot Mining Complex site.

Technical Approach

The preferred alternative involves undertaking a field and office study of the stream channels and associated floodplains of Lower Mike Horse Creek, Beartrap Creek, and the Upper Blackfoot River to describe the ecological responsiveness of these systems. Results of the study are intended for use as a restoration tool to predict the degree of change in the floodplain that would result from dam removal. The study tasks will include classifying stream reaches, surveying topography, assessing hydrology, characterizing current and historical geomorphic condition, and mapping existing and prior riparian vegetation distribution. The expected product would be a written report. The specific project objective is to estimate the sensitivity of the channel and floodplain to changes that may result in streamflow patterns due to removal of the Mike Horse Dam. The premise is that stream reaches with different characteristics will respond differently to changes in streamflow and that this information can be used to guide stream restoration.

Remediation options developed by the USFS in the EE/CA for Beartrap Creek and the Upper Blackfoot River have been guided by removal of mine tailings and the locations of these deposits. Remediation options involving partial tailings removal dictate a uniform treatment of Beartrap Creek and minimal intrusion on the Upper Blackfoot River; options that include complete removal involve complete reconstruction of Beartrap Creek and partial relocation of the Upper Blackfoot River. In short, the options are driven by remediation of resources impacted by tailings, not by restoration objectives. The applicant has acknowledged that the results of this study would not be applicable to remediation. Rather, the applicant has stated that the study results could be applied to some potential future restoration that might occur following remediation as a result of adaptive management. While there is some precedent with the USFS for restoration subsequent to remediation, the current perspective of the USFS is to implement a remediation scenario that approaches restoration as closely as possible. The USFS has stated that there is no current plan for undertaking future restoration after the remedy is implemented under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

For the proposed study, the preferred alternative was selected based on the level of data collection and field assessment required and the most effective means of using available technology. Other alternatives considered various scientific evaluation methods. No alternatives addressed options that would have involved staff working collaboratively with the USFS or local resource conservation organizations.

No environmental impacts occur from the proposed study. The project schedule has field work beginning in July 2007 and a final report submitted to the USFS in 2008. The USFS schedule for the EE/CA has little bearing on the proposed study. The applicant states that the results of the study would be useful for restoration design, which might occur later, after remediation. As stated previously, it is uncertain how much, if any, restoration might occur following remediation.

Project Management

The Montana State University Office of Sponsored Programs will administer the grant. The university will provide in-kind funds for all administration; no indirect costs will be charged for the project. A professor with the MSU Department of Land Resources and Environmental Sciences will manage the project. She will also be involved in field work and analysis. Based on her experience with similar work, she is qualified to manage the project. Her roles are clearly defined in the grant application and are appropriate given the budget allocations and project approach.

She will coordinate with the USFS and other stakeholders with an interest in the study. It should be noted that during the review process, the USFS expressed concern that the proposed study might adversely influence the relationship established between ASARCO and the USFS regarding remediation planning.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$200	$0	$41,000	**$41,200**
Professional & Technical	$99,800	$0	$0	**$99,800**
Construction	$0	$0	$0	**$0**
Total	**$100,000**	**$0**	**$41,000**	**$141,000**

The budget appears sufficient and reasonable to fund all aspects of the proposed project. The applicant provided a detailed breakdown of unit costs. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. No costs of the various alternatives are provided, but justification for the proposed action as the least-cost alternative is provided and is reasonable. The only cost that appears irrelevant to the study is $3,200 in direct costs to publish a journal article and to attend an unidentified professional conference to present study findings.

Benefit Assessment

Potential resource benefits associated with implementation of this study would depend on the ability to utilize study results in the design of the restoration of channels and floodplains of Lower Mike Horse Creek, Beartrap Creek, and the Upper Blackfoot River. Since the level and extent of restoration of these streams are presently unknown (and will depend on the EE/CA process), it is problematic to determine whether substantial resource benefits will result from the proposed study. If complete restoration is not undertaken, it is possible the proposed study would not provide any resource benefits.

The USFS has stated that it does not think the study will serve the Mike Horse Dam project at this stage in its process. The USFS has not provided a letter of support because it did not want to appear to advocate a particular remediation option while these options were under consideration.

Environmental Evaluation

There will be no adverse short- or long-term environmental impacts associated with this project.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 71

Applicant Name	Darby, Town of		
Project Name	Darby Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	3,169,531	ACOE 595 Grant
	$	450,000	CDBG Grant
	$	264,128	RD Grant
	$	909,452	RD Loan
	$	750,000	TSEP Grant
Total Project Cost	$	5,643,111	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Town of Darby plans to build a 900,000-gallon water storage tank to provide fire protection and sufficient domestic water supply. Over 20,000 linear feet of water main will be constructed or replaced, reducing leaking, providing increased fire protection, and reducing stagnant water at dead-end mains. An existing well will be put into service and disinfection systems will be installed to ensure the health and safety of the community.

Darby is the southernmost incorporated municipality in Ravalli County, nestled in the Bitterroot Mountains. The town operates the municipal water and sewer system, police department, court system, cemetery, parks, rodeo grounds, museum, and contracts for town fire protection services.

Miners, fur trappers, and loggers converged into a community that was named Darby by Postmaster James Darby in 1888. Structures along Main Street were destroyed three separate times by fire. Each time, town residents came together and rebuilt the town, creating a strong sense of community pride and accomplishment. The town became an incorporated municipality in 1917. Even with the ups and downs of the economy and the mining, fur, and logging trades, Darby has continued to grow through agriculture, ranching, the timber industry, and tourism.

The current water system is almost 50 years old with very few upgrades over the years. The applicant has indicated that the town's drinking water system needs a major overhaul. The town's distribution system could be leaking as much as 67% of the water pumped, the tank is grossly undersized, and the dead-end mains allow water to stagnate. After last summer's boil order from the Montana Department of Environmental Quality (DEQ), the town decided to aggressively tackle the entire drinking water system.

The proposed solution is to do the following:

- Build a 900,000-gallon water storage tank;
- Construct or replace 20,000 linear feet of water main, thus reducing leakage, providing increased fire protection, and reducing stagnant water at dead-end mains; and
- Activate a previously drilled well and install disinfection systems on all wells to ensure the health and safety of the community.

Technical Assessment

Project Background

Darby operates and maintains a public water system in the community utilizing groundwater wells as the source of water. The system serves 766 persons with future population growth projected to 1,055 persons in the next 20 years. The system lacks adequate storage to fight fires and the water mains are undersized to deliver the necessary volume of flow required for fire protection. Lack of looping of water mains creates hydraulic restrictions and stagnant

water. As much as 67% of the produced water is unaccounted for, due primarily to leakage from the water mains. The applicant has assembled a complex funding package to allow a comprehensive solution to identified problems.

Technical Approach

The applicant considered a comprehensive solution to the problems identified in the PER, which resulted in a large project at considerable cost. While the need for improvements is apparent, the specific scope of each project component was not well-documented with supporting technical information. The basis of selection of water main replacement projects was not adequately documented. The project was designed for a 35-year planning period rather than the typical 20-year period; consequently, an overly conservative and costly project may be the result. The quality of the water from the existing groundwater wells was not considered in the PER and the regulatory agency indicated ongoing regulatory problems with high copper concentrations. Concern was also expressed by DEQ staff that the groundwater supply may be under the influence of surface water. The applicant has suggested a schedule for design and construction of the project which may be difficult to accomplish.

Specific tasks to be accomplished:

- Build a 900,000-gallon water storage tank for fire protection;
- Install 20,000 linear feet of six-inch, eight-inch and 12-inch water main to reduce leakage, provide for increased fire protection, and reduce stagnant water at dead-end mains; and
- Put a recently drilled well into service and install a disinfection system to ensure the health and safety of the community.

Project Management

The proposed project management plan indicates that local and professional staff will administer and manage the proposed project from design through completion and close-out. Public involvement was discussed and plans for keeping the public involved in future stages of the project were discussed. A complex financial package is being pursued to support the first phase and project administration will be demanding. The budgeted amount for professional services for project administration appears adequate.

Project planning has been completed and the project appears ready for design in 2007. The applicant's public involvement program has been very successful through the planning phase.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$201,540	**$201,540**
Professional & Technical	$50,000	$0	$756,158	**$806,158**
Construction	$50,000	$0	$4,585,413	**$4,635,413**
Total	**$100,000**	**$0**	**$5,543,111**	**$5,643,111**

This budget appears adequate with cost estimates used to develop the budget sufficiently detailed. The applicant provided an adequate breakdown of unit construction costs. The proposed funding plan is questionable since it relies on success in obtaining grant assistance from five different competitive grant programs, including a large 595 grant from the ACOE. Preliminary information indicates ACOE 595 funding does not include funds for the Darby project this year. Failure to receive funds from the ACOE could significantly affect the schedule and/or scope of the proposed project. The budget appears to have unnecessary loan fees and loan reserves for the RD loan which add to the cost. RD allows the loan reserve to build up over time with the coverage collected; therefore, the reserve does not need to be capitalized. Also, as stated above, the 35-year planning period may result in an unnecessarily large and costly project.

Benefit Assessment

The new water mains in the project could allow for reduced leakage which has been estimated as high as 67% of pumped water. The reduced in leakage, if accomplished, would provide a measurable benefit of conservation of water resources. Energy for pumping and chemicals used for disinfection will also be saved through the reduction in lost water. The project will promote better management of water resources for the potable water supply. The project will also allow for development of water resources required for domestic, commercial, and institutional use in the community. The project will not provide or enhance natural resource-based recreation. No jobs will come directly as a result of the project. A detailed program for public support was documented in the application, including meeting minutes, newspaper articles, etc. Several citizens have signed petitions of support for the project. Letters of support from institutions and local agencies were also included in the application.

Environmental Evaluation

Most of the possible environmental impacts associated with this project were evaluated and several agencies with environmental authority contacted for input. The majority of the work on the distribution system is within previously disturbed areas, which limits the potential for adverse environmental impacts. The water tank will be placed on a hill, but use of a concrete tank will allow partial burial of the structure, reducing visual impact. The project selected appears to create the least adverse impacts of the alternatives considered. Short-term, construction-related impacts will be controlled through proper construction observation and control.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 72

Applicant Name	Sunburst, Town of		
Project Name	Sunburst Back-up Water Supply Wells		
Amount Requested	$	99,236	Grant
Other Funding Sources	$	10,582	Applicant
	$	11,544	MBMG, Indirect
Total Project Cost	$	121,362	
Amount Recommended	$	99,236	Grant

Project Abstract (Prepared and submitted by applicant)

The Town of Sunburst was given several water wells formerly used by an oil company to supply a refinery at Sunburst. Two wells, one hard water and one soft water, have been used to supply water to the town. Corrosive, high-sulfur water ate through the casing in the soft water well in 2001 resulting in growth of sulfur-reducing and iron-related bacteria. This corrosion disrupted the water supply of the town until the well could be replaced. To avoid future disruptions, Sunburst recently renovated two wells for use as a back-up supply, and plugged and abandoned unused wells that posed a possible contamination threat to the Virgelle Aquifer supplying the wells. Because one of the wells could not be renovated and had to be re-drilled, funds were not available to connect the wells to the existing system. This proposal is for funding to connect the rehabilitated wells to the system and confirm the source of the contamination (dry land salinity is suspected). A civil engineer with experience in municipal water supply will design and supervise the connection. All work will be performed by qualified, bonded contractors. Up-gradient shallow wells will be evaluated to determine the source of the high-sulfur content and bacteria which have been found in past samples from some Sunburst wells; steps to prevent future contamination will be recommended.

Technical Assessment

Project Background

Sunburst has water rights on wells originally drilled to provide water for an oil company refinery in Sunburst. The community has a suitable supply of water from mixing hard water from Well 17 with soft water from Well 15. In 2001, corrosive high-sulfur water ate through the steel casing of Well 15, resulting in the growth of sulfur-reducing and iron-related bacteria. These bacteria overwhelmed the town's disinfection system, forcing the town to shut down the well. To avoid future disruptions, the town recently undertook a project which included renovation of Wells 5 and 13 for use as back-up supply and the abandonment of six other unused wells that posed a possible contamination threat to the Virgelle Aquifer that supplies the wells. Because one of the wells could not be renovated and had to be re-drilled, funds were not available to connect Wells 5 and 13 to the existing distribution system.

The proposed project includes completion of Wells 5 and 13, installation of connecting piping between the wells and the existing distribution system, and completion of a study to identify the source of contamination which resulted in the failure of the casing at Well 15. The only other alternative mentioned was the no-action alternative.

Technical Approach

The applicant submitted an RRGL application, but did not complete a Preliminary Engineering Report (PER) for the project. The application lacked sufficient detail in places and several sections of the application were not properly completed.

The primary goal of the project is to provide Sunburst with a reliable and safe water supply. The preferred alternative includes the completion of Wells 5 and 13, installation of connecting piping between the wells and the existing distribution system, and completion of a study to identify the source of contamination which resulted in the failure of the casing at Well 15. Completion of Wells 5 and 13 will include running powerlines to each well and installing pumps, pitless adapters, and related equipment. The report did not indicate the quantity or quality of water available from either of these wells.

An environmental checklist was completed, with no long-term impacts identified. The application included no additional environmental narrative. A schedule was included that indicated that the project will take approximately 18 months to complete; however, no start or completion dates were included.

Specific tasks to be accomplished:

- Install pumps, pitless adapters, and related equipment in Wells 5 and 13;
- Install buried piping to connect Wells 5 and 13 to existing distribution system;
- Run power lines to Wells 5 and 13; and
- Sample up to 10 wells completed in the formations above the Virgelle Aquifer (source formation for the Sunburst wells) to determine the source of the corrosive water that ate through the casing of Well 15 in 2001, and recommend mitigation measures to prevent future problems.

Project Management

The application states that overall project management will be the responsibility of Sunburst's mayor. The team will also include two senior hydrogeologists, a hydrogeologist, and a research assistant with the MBMG. Given the nature and size of the project, the proposed management team is adequate to successfully manage the project from planning through completion and close-out.

Planning has been completed and the project stands ready to go to construction. Although the applicant's proposed schedule did not include a specific start date, the applicant indicates that the project will take approximately 18 months to complete. The application did not include letters of support or public meeting minutes. The reviewer sent a letter to the applicant requesting public support documentation, but no response was received.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$2,000	$0	$2,000	**$4,000**
Professional & Technical	$26,532	$0	$11,666	**$38,198**
Construction	$70,704	$0	$8,460	**$79,164**
Total	**$99,236**	**$0**	**$22,126**	**$121,362**

The budget form in the application is complete and reflects a total project cost of $121,362. The proposed funding strategy appears sound and realistic and includes an RRGL grant ($99,236), town matching funds ($10,582), and MBMG indirect matching funds ($11,544). The matching funds appear secure. The project cost includes completion of two wells to be used as back-up supply for the town, installation of connecting piping between the wells and the existing distribution system, and completion of a study to identify the source of contamination that resulted in the failure of an existing well casing. A detailed cost estimate was provided in the application for the selected alternative to support the project cost. The cost estimate appears adequate for the proposed project. The estimated costs for each line item in the budget form appear accurate for the scope of the proposed project.

The current average residential monthly water rate is $37.12. The proposed funding package does not include loan dollars. As such, the water rates will not be increased as a result of this project. The applicant did not include budget reports or other financial documentation, making it difficult to determine if current water rates are sufficient to properly operate and maintain the water system. The applicant did not include a back-up project funding plan in the event it is not awarded the RRGL grant.

Benefit Assessment

The primary benefits to renewable resources are resource conservation, preservation, and development. The proposed project provides resource benefits by completing two groundwater wells as a back-up supply for the town. Furthermore, identifying and managing the source of contamination that caused the previous casing failure will provide resource preservation, preserving the quality of water in the Virgelle Aquifer. Water meters are not included as a part of the proposed improvements. The project will contribute to improving or maintaining groundwater quality, and allowing continued use of groundwater as a drinking water source.

Environmental Evaluation

An environmental checklist was completed for the preferred alternative, with no long-term negative impacts noted. Positive impacts on public health and public safety include improved reliability and safety of the town's water system and a dependable and increased water supply for fire protection. No environmental narrative was included with the application, other than brief comments included in the environmental checklist.

Funding Recommendation

The DNRC recommends grant funding of $99,236 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 73

Applicant Name	Geyser Judith Basin County Water and Sewer District		
Project Name	Geyser Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	49,950	U.S. Bureau of Reclamation Grant
Total Project Cost	$	149,950	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Geyser Judith Basin County Water and Sewer District operates a public water system which serves the community of Geyser, approximately 35 miles southeast of Great Falls. The district provides water service to 44 residences and nine commercial or institutional users including the school, post office, and senior citizen center.

The district completed a Preliminary Engineering Report (PER) in 2002 which identified deficiencies in the water system. To address these system deficiencies, the district recently completed a water system improvements project. The project added a storage tank and transmission main, replaced a majority of the distribution system, added water meters to each service connection, and completed a new water supply well.

Unfortunately, the new water supply well was not successful. A test well constructed within 20 feet of the production well had previously indicated that a sufficient quantity of water was available. However, due to variances in the sandstone formation, the new supply well did not produce the amount of water needed for the water system.

The proposed project will construct another new water supply well, this one immediately adjacent to the previously constructed test well. Based on the testing completed previously, it is apparent that water of sufficient quality and quantity can be obtained at the test well location and will meet the district's needs.

Construction of a new water supply well will develop and expand the utilization of a natural resource and also preserve the renewable resource benefits that the water system currently provides.

The project will solve serious health and safety problems and enhance the common well-being of Montanans through development and preservation of resource benefits from water, a renewable resource.

Technical Assessment

Project Background

Geyser is a community of 44 homes located approximately 35 miles southeast of Great Falls along Highway 87. In 2002, the district completed a PER to identify deficiencies in its water supply, storage, and distribution facilities and received grant funding to make the necessary improvements. Construction began in 2005 and the public water supply has been significantly upgraded. However, the proposed production well, drilled 20 feet from a successful test well south of Geyser, yielded inadequate water quantity. The district now proposes to drill another new water supply well immediately adjacent to the test well.

Technical Approach

The 2002 PER recommended construction of two new wells; however not even one successful production well was completed. In addition an emergency generator was not installed. Drilling a production well to an estimated depth of 300 feet adjacent to the successful test well south of Geyser was the only option considered. The well driller hopes to intersect the sandstone fractures that produced adequate water quantity in the test well, considering new test wells or using the test well as a production well. The maximum daily demand for Geyser is 58 gallons per minute (gpm), according to the 2002 PER. Current Montana Department of Environmental Quality (DEQ) standards require

that a groundwater supply meets maximum daily demand with the largest producing well out of service. Only one well on the Geyser public water system produces 40 gpm. The PER did not present any design flow data to show how the existing well and proposed new well could meet the community's water demand and DEQ standards. This project will be completed within the last three quarters of 2007.

The only component of the project is:

- Construct a production well immediately adjacent to the test well south of Geyser.

Project Management

The project engineer has already been selected and will also manage the project. The district clerk will be the fiscal contact. The district board will keep the project on schedule and coordinate with the funding agencies. Duties and responsibilities for each involved party are clearly spelled out in the project management plan. The proposed staff is adequate to successfully manage the proposed project.

Public meetings, open board meetings, newspaper articles, and newsletters will continue to keep the public abreast of the project. Board meetings will have a public comments and question period during which any concerns will be addressed.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$5,500	$0	$0	**$5,500**
Professional & Technical	$0	$0	$0	**$0**
Construction	$94,500	$0	$49,950	**$144,450**
Total	**$100,000**	**$0**	**$49,950**	**$149,950**

The district seeks only RRGL and USBR grants for project funding. This is a realistic package. The USBR has financed many similar well construction projects in other Montana communities. If one of the requested grants is not awarded, then the district would obtain loan funds and increase user rates accordingly. Currently, the combined water and sewer rate for Geyser is 171% of the combined target rate.

The current water rate, as a result of the 2005 water system improvements project, is a flat $37 per month for each of the 44 households served by the project. No additional operation and maintenance costs and no new debt will be incurred as a result of this project. Therefore, the water user rate will not change.

Benefit Assessment

The only resource benefits are for development and preservation. Construction of the new well is development of a renewable resource and allows for continued benefits from the existing public water system. Water quality results for the test well indicate that the new well will exceed secondary contaminant levels for total dissolved solids, sulfate, iron, and manganese. However, this water quality is significantly better than other test wells around Geyser. Geyser has only one public water supply well, and this new well will provide reliable back-up should problems arise with the existing well.

Environmental Evaluation

The proposed project consists solely of construction of a new well. No exceptional environmental circumstances that would halt the project or create additional costs due to implementation of the proposed project are anticipated. An environmental assessment for the full Geyser water system improvements project was completed and a "Finding of No Significant Impact" was made in 2004. All work covered by the environmental assessment has been completed, except for the proposed new well.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 74

Applicant Name	Black Eagle Water and Sewer District		
Project Name	Black Eagle Water System Improvements		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	265,000	Applicant
	$	365,000	TSEP Grant
Total Project Cost	$	730,000	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The Black Eagle Water and Sewer District owns and maintains the water distribution system in Black Eagle. The district's water mains include many blocks of original cast iron piping that occasionally break due to corrosion and brittleness. These breaks lead to associated health and safety problems.

The main road (Smelter Avenue) through Black Eagle is programmed for reconstruction by the Montana Department of Transportation (DOT) in 2010. Water mains in the reconstruction area are the oldest cast iron mains in the water system. These mains have historically been brittle and broken due to nearby construction activity. These mains must be replaced before the highway reconstruction is finished to minimize future possible damage to the reconstructed roadway.

The system has several problems including:

- Impending roadway reconstruction;
- Failing mains due to age and pipe material;
- Below standard valving and looping;
- Undersized mains; and
- Galvanized steel and possibly lead service lines.

As a result of these problems, Black Eagle needs to replace numerous blocks of its water system to meet modern construction standards. This Preliminary Engineering Report (PER) provides a detailed evaluation of the water system and proposes solutions for the various deficiencies.

The Black Eagle Water and Sewer District will fund many of the improvements from its financial reserves. Because the citizens pay more for water and sewer service than the Montana Department of Commerce (DOC) target rate for communities with their income level, the district is also requesting funding assistance from the Treasure State Endowment Program (TSEP) and the Renewable Resource Grant and Loan Program (RRGL) to complete necessary improvements.

Technical Assessment

Project Background

Black Eagle is a community of 488 homes bordering the city of Great Falls on the west and north, with the Missouri River to the south. The Black Eagle Water and Sewer District contracts with the city of Great Falls for its public

water supply and is therefore not responsible for any water storage or treatment facilities. However, it owns and is responsible for its own distribution system. Smelter Road in Black Eagle's commercial section is slated for reconstruction by the Montana Department of Transportation (DOT) in 2009 or 2010 and the water mains in the roadway must be improved as a condition of the DOT plan. Cast iron water mains in poor condition due to corrosive soils will be replaced.

Technical Approach

The preferred alternative consists of installation of approximately one mile of PVC water main and 15 fire hydrants within some sections of Smelter Avenue and neighboring streets. The three alternative choices, other than the no-action alternative, were identical in the scope of construction. The alternatives analysis should have discussed and considered different construction techniques and materials. The only difference was in the scheduling and financing of improvements. The chosen alternative is based on obtaining TSEP and RRGL grants in July 2007 so the project may be completed as soon as possible. Construction is projected for April through September 2008. Final engineering design has already been completed.

Unresolved problems within the district's water distribution system that were not adequately addressed in the PER are some remaining four-inch water mains and inadequate fire flows in the commercial area of Smelter Road. The alternative of installing larger diameter mains in Smelter Road to obtain recommended fire flows was not analyzed. The hydraulic computer model in the PER was not calibrated to field conditions useful in predicting various project scenarios.

Specific tasks to be accomplished:

- Replace all remaining cast iron water mains in Black Eagle;
- Replace all fire hydrants and valves on these mains; and
- Replace all nonstandard water service lines to the property on these mains.

Project Management

A standard management plan is proposed. The district chairman will be responsible for district contracts and the district's secretary-treasurer will be responsible for project funding and financial matters associated with the project. The project engineer has already been selected and has completed final design. A grant manager has yet to be selected. The proposed staff is adequate to successfully manage the proposed project.

Regular articles in the Great Falls Tribune will keep people abreast of construction activities and the status of roads in the construction area. Monthly project update meetings will be conducted. Telephone numbers for project contacts will be available so citizens can call with questions or concerns.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$23,000	**$23,000**
Professional & Technical	$0	$0	$0	**$0**
Construction	$100,000	$0	$607,000	**$707,000**
Total	**$100,000**	**$0**	**$630,000**	**$730,000**

The district seeks RRGL and TSEP grants for project funding, in combination with its own reserves as matching funds. Both TSEP and RRGL funds will be available at the same time, in summer 2007. The predicted user rate exactly meets the combined target rate, thus qualifying the district for TSEP funding. Although the district qualified, Community Development Block Grant funds were not sought because of a conflicting Cascade County project. Rather than incur a loan, the district is using reserves to complete project funding.

No new debt will be assumed as a result of this project nor will there be additional annual operation and maintenance expenses. However, the existing water and sewer rate will increase by $3 for each of the 488 water users following

an increase in water charges by the city of Great Falls. The district has the ability to assess water user fees. The total projected water and sewer rate for the Black Eagle Water and Sewer District after this project is $41.49, which exactly equals the combined target rate. With over 51% of Black Eagle residents qualifying as LMI, the district attempts to keep water and sewer rates as low as possible. The district owns and maintains its own wastewater system and has kept separate financial accounts for this system. In FY 2005 the water and sewer fees were combined.

Benefit Assessment

The only benefits to renewable resources are for resource preservation. The proposed project will keep the existing public water system in beneficial use for the community of Black Eagle by replacing old, deteriorating water mains and appurtenances. The remaining cast iron mains within Black Eagle, which have been subject to more rapid deterioration due to corrosive soils, will be replaced as a result of this project.

Environmental Evaluation

The proposed project consists solely of water main replacement. The closest known contaminated soils are 1,000 feet from the proposed main replacement areas. Groundwater depth is stated to be below the depths of water main construction. All construction will be conducted within already paved areas or previously disturbed areas. Negative environmental impacts will be short-term and construction-related, such as dust and noise. Overall the project will have positive environmental impacts by replacing failing mains and thus preventing leakage of potable water and by protecting water users from possible water system contamination during main breaks and repairs.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 75

Applicant Name	Glacier County Conservation District		
Project Name	Marias River Bridge Road Stabilization		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	2,400	Applicant
	$	613,982	Unidentified Source
Total Project Cost	$	716,382	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

Bank erosion on the Marias River near Pugsley Bridge and erosion on Cut Bank Creek near Sullivan Bridge are destroying two stream banks and their adjoining roads within the Marias River Watershed (MRW). This application will fund a Preliminary Engineering Report (PER) on two separate sections of Marias River waterways. While in two separate locations, and requiring two separate solutions, they will both be managed as one project to take advantage of the bargaining power in negotiating contracts and project management coordination.

Sullivan Bridge Road on Cut Bank Creek

The proposed project will address the issue of excessive sediment deposit in Cut Bank Creek. The bank-cutting action is combined with spring runoff, cloudbursts, and other rainfall events to create extensive erosion of Sullivan Bridge Road. The sediment is entering Cut Bank Creek approximately 0.3 of a mile before it joins Two Medicine River at the confluence of the Marias River in the southeastern corner of Glacier County.

This erosion is cutting deep channels in the banks and washing away the stream bank so the narrowing road has become a safety hazard. Farmers and ranchers use this road for access to land and communities on both sides of the rivers. Erosion is also depositing large quantities of sediment into the mouth of the creek and its confluence with the Marias River. The problem is compounded by a sharp, 90-degree bend in Cut Bank Creek that contributes to river bank deterioration.

An alternatives analysis was completed by a consulting engineer in April 2006 and provided the MRW with suggested solutions to the erosion. The MRW Technical Advisory Committee (TAC) has chosen to move forward with the alternative of installing in-stream structures to manipulate the channel's geometry and flow.

Pugsley Bridge Road

Pugsley Bridge is on the Marias River, 4.43 river miles downstream from Tiber Dam and Lake Elwell in Liberty County. The bridge is historically significant as one of the few remaining steel cable suspension bridges in the United States, and is an important link for landowner and recreational access to that area of the Marias River.

The river flow around the north support of the bridge is creating downstream erosion of the river bank that parallels the road. Sediment build-up immediately below the bridge is creating an island with the potential for changing the location of the river channel.

An alternatives analysis was completed in April 2006 by a consulting engineer. Based on the engineer's analysis, the MRW TAC has selected the preferred alternative for each project. Funds are being requested to complete the next step in the process by finishing the preliminary engineering field work and design to produce a geomorphological analysis, reference reach analysis, and environmental analysis and developing construction designs and specifications for each of the sites. Also, a project manager will be contracted to research and secure funds necessary to complete the remaining construction phase of the projects and to develop the organizational structure for coordination of the current and future project tasks.

Technical Assessment

Project Background

The problem involves unstable river banks at two sites on two different streams. Each site is about 1,000 feet in length. The first site involves a reach of Cut Bank Creek adjacent to Sullivan Bridge Road and the other a reach of the Marias River just downstream from the Pugsley Road Bridge. The project would design and install bank stabilization measures at both sites. The applicant indicates that such measures are needed to maintain the functionality of Sullivan Bridge Road, Pugsley Road, and the Pugsley Road Bridge. The goal is to provide long-term stabilization with minimal adverse environmental consequences while protecting the adjacent road and bridge infrastructure. For both sites, the alternatives considered included taking no action, installing hard bank armor, installing in-streamflow redirection structures, and completely reconstructing the channel to a new location. For the Cut Bank Creek site, an alternative involved relocating Sullivan Bridge Road.

Technical Approach

For Cut Bank Creek, the preferred alternative involves a composite solution of excavating a new channel to shift the orientation of the meander, constructing a low terrace along the margin of the eroding bedrock bluff, and installing a pair of in-stream structures to direct flow. This alternative would be designed to move the channel away from the bluff Sullivan Bridge Road traverses and to protect the toe of the bluff from the erosive effects of high flow. The preferred alternative for this site was selected from a suite of alternatives, but the applicant did not provide a reason for the selection. This alternative is the most complex of those identified. It would involve construction on land of the Blackfoot Tribe, and would also involve shifting the channel center line, which is the Tribal boundary. An alternative utilizing locally available sandstone for riprap or in-stream structures was not included in the assessment.

For the Marias River, the preferred alternative involves installation of a series of five in-stream structures on both sides of the river to redirect flow patterns away from the eroding bank. The preferred alternative may be overly

aggressive. The preferred alternative was selected from a range of alternatives. The applicant stated that this alternative provided the greatest cost-benefit ratio, but no substantiation was provided.

An implementation schedule was not provided. It appears the assessment and design activities funded by the grant would be undertaken once monies are available. The applicant does not provide anticipated start or completion dates.

Specific tasks to be accomplished:

- Undertake geomorphic and reference reach analyses;
- Complete design and prepare plans and specifications;
- Acquire environmental permits;
- Undertake construction; and
- Revegetate disturbed land.

Project Management

The Marias River Watershed coordinator will manage the project, with assistance from the Glacier County Conservation District administrator. Roles of the project manager and assistant are clearly defined. Project management is addressed for the assessment and design phase. The project budget provides funding to support the financial and administrative aspects of this phase. Management for this phase (excluding construction) accounts for 24% of the total budget; this figure seems high given the tasks required. Project management during the construction phase is estimated but not discussed.

The nonmanagement work will be undertaken by consultants and contractors. This work will presumably be administered through a competitive bidding process, although contracting is not mentioned.

To date, only basic planning for the proposed project has been completed. No schedule is proposed.

The applicant's public involvement plan includes interaction with a wide variety of stakeholders, including federal, state, Tribal, and local agencies and organizations, as well as local residents and landowners. The Marias River Watershed and the Glacier County Conservation District will serve as suitable outlets for dissemination of information and for public participation.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$21,873	$0	$2,400	**$24,273**
Professional & Technical	$78,127	$0	$0	**$78,127**
Construction	$0	$0	$613,982	**$613,982**
Total	**$100,000**	**$0**	**$616,382**	**$716,382**

Some of the proposed costs seem unnecessarily high. Costs for permit acquisition appear very high (half as much as the assessment and design effort). The cost estimate for the analysis and design does not include categories that would typically be included in such work (e.g., hydraulic modeling and geotechnical analysis). Construction costs associated with this project are substantial.

The status of funding for construction is uncertain. The applicant has taken no steps to secure funding for construction. Given the lack of apparent need for stabilization of the perceived erosion on Cut Bank Creek, there is the potential that half of this project would never receive funding.

Benefit Assessment

While Sullivan Road and the Pugsley Road Bridge are in rather remote locations, these roads and bridges provide necessary access for local residents, ranchers, emergency vehicles, and recreational users. The shortest distances to drive around the Sullivan Bridge and the Pugsley Road Bridge are estimated at 32 and 13 miles, respectively.

Limited benefits to renewable resources exist. There may be some minor improvement to riparian condition and aquatic habitat, although given the length of these stream reaches relative to the entire length of the waterways, the proposed improvement will have a minor resource benefit.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. If stabilization at the two sites is well designed and implemented, environmental impacts would generally be limited to short-term, construction disturbance. Any short-term impacts would be addressed during the permit acquisition process. Long-term impacts would likely be minimal.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 76

Applicant Name	Buffalo Rapids Project, District 2		
Project Name	Open Lateral Conversion to Pipeline		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	70,413	Sponsor
	$	21,675	Landowners, In-Kind
	$	33,621	NRCS
Total Project Cost	$	225,709	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The proposal area covers 11,478 acres of the 45,647 contained within the Buffalo Rapids Project (BRP) located on 64 miles of the Yellowstone River in eastern Montana.

Buffalo Rapids has two primary concerns: water quantity and water quality. Secondary concerns are soil erosion, noxious weeds, and CO_2 emissions. Current conditions are a 30% overall irrigation water use efficiency; nitrate fraction in excess of 7% in the Lower Yellowstone River near Glendive attributed to Buffalo Rapids; an estimated 10 tons of soil loss per acre from furrow erosion; and 2,100 acres of noxious weed infestation.

Goals and objectives:

- Increase system efficiency by 20%;
- Reduce nitrate loading by 50%;
- Reduce soil erosion to sustainable levels;
- Reduce noxious weed infestations by 75%; and
- Reduce CO_2 emissions by 5,000 tons per year.

The goals and objectives will be achieved by the most efficient and cost-effective method of addressing the problem developed through the Natural Resources Conservation Service (NRCS) Resource Management System (RMS) planning for groups involved with laterals and on-farm planning. Construction is being done by Buffalo Rapids, which has the means and experience, with technical assistance from NRCS and the U.S. Bureau of Reclamation (USBR). Since the first contracts were funded in October 1998, installations include 210,000 feet of pipe, two weather stations to improve irrigation water management and education, a mile of canal liner, 14 center pivots, 47 surge valves, and over 166,934 feet of gated pipe.

This project involves replacement of one open lateral with polyvinyl chloride (PVC) pipe. The total cost will be $225,709 with Buffalo Rapids District 2 donating $70,413 in materials, labor, and machine time; NRCS contributing $33,621 in planning, follow-up, and Environmental Quality Incentive Program (EQIP) funds; landowners contributing $21,675; and the Renewable Resource Grant and Loan Program (RRGL) $100,000.

Technical Assessment

Project Background

BRP commissioned an areawide conservation plan and environmental assessment in 1998 for the entire 45,647 acres (25,373 irrigated) within BRP. The plan recommended a wide variety of on- and off-farm conservation measures which included lining or installing PVC pipes in earthen conveyance laterals. The project proposed in this application is replacement of 5,930 feet of Lateral 3.2 in the Shirley Division with underground plastic irrigation pipe. The planning and implementation of on-farm water conservation measures, use of polyacrylamide (PAM) where appropriate, and implementation of an irrigation management plan are also part of the project. The areawide conservation plan presents alternatives for the entire BRP, but no alternatives to the project proposed in this application were presented.

Technical Approach

The goals of the proposed project are to conserve water that seeps through the canal and improve irrigation water management. The preferred alternative is to replace the open lateral with underground plastic irrigation pipe. The areawide conservation plan presents conservation alternatives for the entire BRP, but no alternatives to the project proposed in this application were presented. Construction is proposed to begin in summer 2007 and be completed within a month. Other on-farm measures will be conducted over a period of three years.

Specific tasks to be accomplished:

- Prepare site and order materials;
- Install cast turnout;
- Excavate trench;
- Lay pipe;
- Backfill; and
- Other planning and on-farm water conservation measures.

Project Management

BRP will coordinate all activities and be responsible for installation and O&M of canal improvements. NRCS will provide technical assistance. Implementation of on-farm measures will be through individual long-term contracts between landowners and the NRCS. The project is ready for implementation when funding is available and the current irrigation season is over. Public meetings were conducted in 1997 and 1998 to present the areawide conservation plan. No further public meetings are planned for the specific project proposed in this application.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$2,122	**$2,122**
Professional & Technical	$0	$0	$11,946	**$11,946**
Construction	$100,000	$0	$111,641	**$211,641**
Total	**$100,000**	**$0**	**$125,709**	**$225,709**

This budget related to replacing the open lateral with pipeline appears sufficient and reasonable to fund the proposed project. It is not clear if or how the rest of the budget relates to the canal conversion project–the application suggests that most of the on-farm work proposed in the application has already been completed. The applicant provided a detailed breakdown of unit costs, but values presented in tables and in the text did not match. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Costs of alternatives were not provided. Justification for the proposed action as the least-cost alternative in the long run was not provided.

BRP currently assesses fees of $29.50/acre plus $20.50/acre-foot. The proposed project will assess $3.93/acre in support of project funding. BRP appears able to provide the matching labor, materials, and cash listed in the budget. There is no back-up plan provided in this budget.

Benefit Assessment

The primary benefit to renewable resources is conservation of water lost to canal seepage. Estimates made by the applicant indicate that the conversion project will save 14 to 30 acre-feet of water annually. Secondary benefits include reducing the number of weed seeds that can be transported via an open canal, reducing canal O&M, and improving capability to deliver water.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Project No. 77

Applicant Name	Buffalo Rapids Project, District 1		
Project Name	Open Lateral 34.5 Conversion to Pipeline		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	64,680	Applicant, In-Kind and Materials
	$	20,320	Landowners, In-Kind
	$	28,612	NRCS, In-Kind and EQIP Funds
Total Project Cost	$	213,612	
Amount Recommended	$	100,000	Grant

Project Abstract (Prepared and submitted by applicant)

The proposal area covers 34,169 acres of the 45,647 contained within the Buffalo Rapids Project (BRP) located on 64 miles of the Yellowstone River in eastern Montana.

Buffalo Rapids has two primary concerns: water quantity and water quality. Secondary concerns are soil erosion, noxious weeds, and CO_2 emissions. Current conditions are a 30% overall irrigation water use efficiency; nitrate fraction in excess of 7% in the Lower Yellowstone River near Glendive attributed to Buffalo Rapids; estimated 10 tons of soil loss per acre from furrow erosion; and 2,100 acres of noxious weed infestation.

Goals and objectives:

- Increase system efficiency by 20%;
- Reduce nitrate loading by 50%;
- Reduce soil erosion to sustainable levels;
- Reduce noxious weed infestations by 75%; and
- Reduce CO_2 emissions by 5,000 tons per year.

The goals and objectives will be achieved by the most efficient and cost-effective method of addressing the problem developed through the Natural Resources Conservation Service (NRCS) Resource Management System (RMS) planning for groups involved with laterals and on-farm planning. Construction is being done by Buffalo Rapids, which has the means and experience, with technical assistance from NRCS and the U.S. Bureau of Reclamation (USBR). Since the first contracts were funded in October 1998, installations include 210,000 feet of pipe, two weather stations to improve irrigation water management and education, a mile of canal liner, 14 center pivots, 47 surge valves, and over 166,934 feet of gated pipe.

This project involves replacement of one open lateral with PVC pipe. The total cost will be $213,612 with Buffalo Rapids District 1 donating $64,680 in materials, labor, and machine time; NRCS contributing $28,612 in planning, follow-up, and Environmental Quality Incentive Program (EQIP) funds; landowners contributing $20,320; and the Renewable Resource Grant and Loan Program (RRGL) $100,000.

Technical Assessment

Project Background

BRP commissioned an areawide conservation plan and environmental assessment in 1998 for the entire 45,647 acres (25,373 irrigated) within BRP. The plan recommended a wide variety of on- and off-farm conservation measures which included lining or installing PVC pipes in earthen conveyance laterals. The project proposed in this application is replacement of open lateral 34.5 with underground plastic irrigation pipe. The planning and implementation of on-farm water conservation measures, use of polyacrylamide (PAM) where appropriate, and implementation of an irrigation management plan are also part of the project; however, much of this work has already been completed. The 1998 areawide conservation plan presents alternatives for the entire BRP, but no alternatives to the canal conversion project proposed in this application were presented.

Technical Approach

The goals of the proposed project are to conserve water that seeps through the canal and improve irrigation water management. The preferred alternative is to replace the open lateral with underground plastic irrigation pipe. The areawide conservation plan presents conservation alternatives for the entire BRP, but no alternatives to the project proposed in this application were presented. Construction is proposed to begin in summer 2007 and be completed within a month. Other on-farm measures will be conducted on a voluntary basis over a period of three years.

Specific tasks to be accomplished:

- Prepare site and order materials;
- Install cast turnout;
- Excavate trench;

- Lay pipe;
- Backfill; and
- Other planning and on-farm water conservation measures.

Project Management

BRP will coordinate all activities and be responsible for installation and O&M of canal improvements. NRCS will provide technical assistance. Implementation of on-farm measures will be through individual long-term contracts between landowners and the NRCS. The project is ready for implementation when funding is available and the current irrigation season is over. Public meetings were conducted in 1997 and 1998 to present the areawide conservation plan. No further public meetings are planned for the specific project proposed in this application.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$0	$2,558	**$2,558**
Professional & Technical	$0	$0	$8,292	**$8,292**
Construction	$100,000	$0	$102,762	**$202,762**
Total	**$100,000**	**$0**	**$113,612**	**$213,612**

This budget related to replacing the open lateral with pipeline appears sufficient and reasonable to fund the proposed project. It is not clear if or how the rest of the budget relates to the canal conversion project-- the application suggests that most of the on-farm work proposed in the application has already been completed. The applicant provided a detailed breakdown of unit costs, but values presented in tables and in the text did not match. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. Costs of alternatives were not provided. Justification for the proposed action as the least-cost alternative in the long run was not provided.

BRP currently assesses fees of $29.50/acre plus $20.80/acre-foot. The proposed project will assess $3.80/acre in support of project funding. BRP appears able to provide the matching labor, materials, and cash listed in the budget. There is no back-up plan provided in this budget.

Benefit Assessment

The primary benefit to renewable resources is conservation of water lost to canal seepage. Estimates made by the applicant indicate that the conversion project will save 43 to 92 acre-feet of water annually. Secondary benefits include reducing the number of weed seeds that can be transported via an open canal, reducing canal O&M, and eliminating safety concerns related to an open canal running through a residential area (Glendive).

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Minimal short-term, construction-related impacts will be controlled through proper construction methodology.

Funding Recommendation

The DNRC recommends grant funding of $100,000 upon development and approval of the final scope of work, administration, budget, and funding package.

Applicant Name	Deer Lodge Valley Conservation District		
Project Name	Upper Clark Fork River Habitat, Water Quality, and Restoration Enhancement Project		
Amount Requested	$	97,406	Grant
Other Funding Sources	$	100,000	DEQ 319 Grant
	$	5,000	Deer Lodge Conservation District
	$	5,000	Upper Clark Fork WRC
Total Project Cost	$	207,406	
Amount Recommended	$	0	

Project Abstract (Prepared and submitted by applicant)

The Upper Clark Fork River Basin (UCFRB) encompasses about 3,600 square miles, extending from the headwaters of Silver Bow Creek atop the Continental Divide near Butte to its confluence with the Blackfoot River at Bonner. In its journey, the river runs through some of the most impacted stream and river reaches in Montana. Mining impacts from the legacy of extracting metals in the Butte area to smelting in Anaconda resulted in the largest Superfund site in the United States. Time, cleanup, and restoration have greatly improved the streams and rivers, but much more work still needs to done. Restoring impacted streams and basin tributaries and protecting the local heritage are cornerstones of the Watershed Restoration Coalition (WRC) mission.

A total of $97,406.50 RRGL funds is requested for coordination and technical support and to help the WRC work with its many partners. A one-to-one cost-share is provided through the Montana Department of Environmental Quality (DEQ) 319 grant awarded to the WRC for Total Maximum Daily Load (TMDL) planning.

This project provides coordination, management, and technical planning, but is indirectly a construction and implementation effort needed for conserving and restoring natural resources. Coordination between numerous entities conducting projects in the UCFRB is essential to identify restoration targets, goals, joint projects, and to ensure a healthy and economically viable ecosystem. To this end, the focus of this project is to identify, target, and implement actions that reduce basin impairment and specifically improve main stem and tributary water quality by working with the TMDL program. This grant will fund the technical support needed to oversee development of watershed restoration plans and targets and the work with stakeholders to educate them about the conservation measures implemented.

This is a two-year grant request with goals of improving water quality, soil conservation, and fisheries.

Specific goals to be accomplished:

- Develop targets through the DEQ TMDL program to improve water quality and identify restoration projects;
- Reduce soil loss on agricultural lands and logged areas through minimizing soil bank erosion and implementation of road Best Management Practices (BMP), as well as reduce nutrient loading from agricultural and municipal sources;
- Improve fishery and aquatic habitat, recreation opportunities, and protect species of concern; and
- Prepare an action plan that links basin restoration work and TMDL planning.

Technical Assessment

Project Background

The Upper Clark Fork River, extending from the headwaters of Silver Bow Creek near Butte to its confluence with the Blackfoot River at Bonner, has been degraded over time by mining and smelting. Considerable restoration in the 3,600-square-mile river basin has been done, but much remains to be accomplished. The area encompasses valuable agricultural lands as well as recreational waters like Georgetown Lake, Rock Creek, and the Little Blackfoot River.

The goal of this project is to develop and implement an action plan that will integrate habitat restoration and water quality improvement efforts throughout the Upper Clark Fork River Basin. Coordination among numerous agencies, organizations, and individuals is essential; these include the DEQ, the Clark Fork Coalition, the Natural Resource Damage Program, and area landowners. The project will provide the technical support needed to oversee development of watershed restoration plans and water quality improvement targets.

Technical Approach

This grant request is for a planning project that would provide funds to hire a watershed coordinator and provide funding to a technical services provider under contract to the WRC of the Upper Clark Fork River Basin. The project is a collaborative effort between the WRC and the Deer Lodge Conservation District. The WRC includes four conservation districts, two weed boards, and one county commissioner. The proposal primarily involves coordination, management, and technical planning through hiring of an Upper Clark Fork River Basin coordinator and a technical services provider.

The goals of the project include:

- Managing grants, contracts, project activities, and services throughout the basin;
- Developing and implementing an action plan, budgets, and fund-raising efforts;
- Overseeing contracted services; and
- Planning and coordinating meetings.

Ultimate goals include implementing projects that could reduce soil loss on agricultural lands and logged areas by minimizing erosion, adopting BMP for road construction, reducing nutrient loading, improving fish and wildlife habitat, and enhancing recreational opportunities.

Several alternatives to funding of this proposal were considered: no action, legislative action, and reduced scope of work. Although the preferred alternative–hiring a watershed coordinator to oversee activities and manage grants and future fund-raising–was deemed to have the greatest net benefit, the proposal does not provide much detail to support this choice. The proposal relies on stakeholder ideas developed at two public meetings (included in the grant application) to support the choice of the preferred alternative, with no clear tie between the proposal and the meeting results.

The legislative action and reduced scope of work alternatives were not discussed in detail. One issue not identified in the proposal is whether the WRC is the appropriate entity to develop an action plan for the entire Upper Clark Fork watershed. Because of its primarily agricultural makeup, the WRC may not be readily accepted by other interests in the drainage. Others may believe the WRC lacks the focal point for enhancement and restoration projects associated with the Clark Fork River and its tributaries. Successful watershed groups like the Blackfoot Challenge and Big Hole Watershed Committee derive their effectiveness from diverse memberships that bring an array of experience and differing points of view to these organizations.

The proposal does not provide cost estimates for alternatives other than the preferred alternative. The proposal does not have a 20-year present worth analysis or a cost-benefit analysis.

The implementation schedule appears feasible assuming a watershed coordinator can be hired by July 2007 when the project would begin.

Specific tasks to be accomplished:

- Develop an action plan to identify, prioritize, and evaluate watershed restoration and conservation projects throughout the Upper Clark Fork River Basin;
- Coordinate plans through meetings with landowners and agency personnel and keep the public informed and involved;
- Plan new restoration projects and prepare grant applications to fund these efforts; and
- Integrate watershed restoration plans with the DEQ TMDL program.

Project Management

The project will be administered by the Deer Lodge Conservation District and a yet-to-be-hired watershed coordinator. The conservation district will provide financial management and contract administration through its administrator at a 6% rate, or $5,400. The watershed coordinator will be responsible for day-to-day project management. Project management funds requested from the Renewable Resource grant total $9,240.

Opportunities for public involvement include WRC and Deer Lodge Conservation District meetings, which are open to the public. The WRC is made up of agricultural interests and would benefit from expanding its membership to include other interests in the Upper Clark Fork drainage.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$5,400	$0	$0	**$5,400**
Professional & Technical	$92,006	$0	$110,000	**$202,006**
Construction	$0	$0	$0	**$0**
Total	**$97,406**	**$0**	**$110,000**	**$207,406**

The proposed budget appears accurate and feasible. About 90% of the RRGL grant will be spent on funding the watershed coordinator position and the technical services provider. The only cash match is from the DEQ 319 grant. The WRC proposes hiring the watershed coordinator using a request for proposal (RFP), but it is not clear if this process would be used to hire the technical services provider.

Benefit Assessment

All of the resource benefits projected in the proposal depend on future undefined projects for which the WRC would try to find funds. No projects with resource benefits are directly tied to the proposal. The project has the potential to improve soil and water quality in the Upper Clark Fork River Basin if the WRC is successful in implementing restoration and conservation practices. However, it is not clear if the WRC will be successful in becoming the leader in restoration of the Upper Clark Fork drainage. Stakeholders not included in the WRC are working on restoration proposals in the basin to bring forward when the Natural Resource Damage Program has resolved its litigation with ARCO and funding becomes available for river restoration projects. An extensive and detailed investigation of the Clark Fork River floodplain is under way, funded by the Environmental Protection Agency (EPA), which will provide valuable information for future restoration efforts. Clearly, numerous stakeholders, including the WRC, will be active in restoration of the Upper Clark Fork River Basin.

Environmental Evaluation

Because this is primarily a planning project, no adverse environmental impacts exist.

Funding Recommendation

The DNRC recommends no funding for this project. There were no definable deliverables for the project. Most of the project costs were for program related expenses. Reviewers also noted that the Watershed Restoration Coalition is one of many stakeholders in the Clark Fork Watershed and does not appear to be a broad-based organization with enough diversity to become the focal point of enhancement and restoration projects associated with the Clark Fork River and its tributaries.

Applicant Name	Meagher County Conservation District (MCCD)		
Project Name	Hydrologic Investigation of the Smith River Watershed		
Amount Requested	$	100,000	Grant
Other Funding Sources	$	25,000	DNRC 223 Grant
	$	124,165	RDGP Grant
	$	142,380	USGS
Total Project Cost	$	391,545	
Amount Recommended	$	0	

Project Abstract (Prepared and submitted by applicant)

This project is an investigation of the groundwater and surface water interaction within the Upper Smith River Watershed, a tributary of the Missouri River. The Smith River is an important recreational and agricultural area, in Meagher and Cascade counties in west-central Montana. Irrigation is the cornerstone of this area's agricultural and economic well-being. Tourism is also important to the economy of the area and the state of Montana, with thousands of visitors traveling to the area annually to float and fish the nationally renowned Smith River.

MCCD has local responsibility to assess local natural resources and to oversee their proper management. The MCCD believes strongly that these decisions should be based on scientific information, not perception and/or emotion. The information from this hydrologic investigation is necessary to determine and predict the cumulative impacts that changes from wild flood irrigation to sprinkler irrigation and other water uses will have on the hydrologic system in the Upper Smith River Watershed. The investigation will also determine if use of groundwater for sprinkler irrigation is resulting in reduced flow in the Smith River. The MCCD will carry out this project through a partnership with the U.S. Geological Survey (USGS).

This project would result in increased understanding of the overall hydrologic system. It will help state and federal agencies, along with the concerned public, to better understand the interaction of groundwater/surface water, an important component when determining allocation of water in the area. The ability to determine if groundwater is or is not "immediately or directly connected" to surface water is a critical component when determining the water allocation under Montana law.

Information from this study will enhance the conservation, proper management, and development and/or preservation of our limited water resource. The information from this study will benefit agriculture, fish and wildlife habitat, associated outdoor-based recreation, and health and human safety.

Technical Assessment

Project Background

The Upper Smith River Watershed, in west-central Montana, is an important recreational and agricultural area. Recent drought conditions have impacted both sectors of these interests, resulting in efforts to conserve the limited water supply. During this time, some area irrigators switched from flood irrigation practices to sprinkler irrigation. Some groups in the watershed believe that flood irrigation may fill shallow aquifers, thus benefiting the Smith River by helping to sustain streamflows in the late summer months. Other groups believe the use of groundwater wells near the river intercepts water that would potentially flow back into the river and recharge streamflow. The need for this project stems from the necessity to better understand the relationship between the surface water and groundwater, which affects the streamflow in the Smith River. The overall goal of this project is to collect data that will lead to a sustainable river system that allows for both agricultural and recreational activities.

Technical Approach

The preferred alternative to understanding the interaction between surface water and groundwater is a comprehensive multi-year study addressing numerous components of the Smith River and its tributaries. Measurements will include

temperature and specific conductance of the Smith River and its tributaries; streamflow discharge; stream stage; groundwater levels; temperature modeling; and water chemistry analysis. The goal of this project is to maintain a sustainable river system with balance between agriculture and recreation. Work on this project began in December 2005 and the anticipated completion date for the project is some time in 2009.

The main objectives of this project are to:

- Increase understanding of the interaction between groundwater and surface water in the Smith River watershed;
- Understand the overall hydrologic system;
- Identify gaining and losing reaches of the Smith River;
- Educate the public about groundwater/surface water interactions; and
- Develop recommended water conservation practices for the Smith River watershed.

Three alternatives, including the no-action alternative, were considered for this project. A tracer/discharge study was evaluated which would involve injecting a tracer solution into the Smith River and measuring the tracer concentrations at several downstream locations. The tracer/discharge alternative was not chosen because it relies on only one method to characterize a complex system.

The preferred alternative selected will use multiple methods to characterize and/or measure the same reach, thus providing a better understanding of the entire system. Other considered alternatives would not accomplish the desired goals and may not provide legally defensible results. The preferred alternative will rely on significant landowner cooperation to gain access to a groundwater and surface water monitoring network. The applicant appropriately addressed this need. The scope of work is detailed, and the proposed tasks will accomplish the desired goals and objectives.

Specific tasks to be accomplished:

- Compile and review existing data;
- Install gauging stations and continue to operate existing stations;
- Conduct initial reconnaissance of the Smith River;
- Inventory existing wells;
- Conduct synoptic streamflow measurements;
- Conduct synoptic groundwater level measurements;
- Install piezometers and temperature loggers;
- Monitor wells, piezometers, temperature loggers, and stream stage;
- Generate water table and gain/loss maps;
- Conduct and analyze water chemistry samples; and
- Estimate aquifer properties and streamflow gains and losses.

This application seeks funding for Phase 1 of the project, which includes all data collection and monitoring activities detailed above. Phase 2 will consist of data review, report writing, and report publication.

Project Management

The Meagher County Conservation District administrator will oversee day-to-day management of the grant, with assistance from the NRCS district conservationist. Based on the qualifications listed in the application, these individuals are qualified to manage the project. Roles of the project manager and other key personnel are clearly defined and reasonable given the project scope. The project manager will coordinate with DNRC, integrate public input, and monitor the completion of specific tasks. This project is ready for implementation.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$9,344	$0	$26,251	**$35,595**
Professional & Technical	$90,656	$0	$265,294	**$355,950**
Construction	$0	$0	$0	**$0**
Total	**$100,000**	**$0**	**$291,545**	**$391,545**

The budget appears reasonable to fund the project. The applicant provided a detailed breakdown of costs. No budget or funding irregularities were found. The unit costs used to develop the budget appear reasonable and adequate. The cost provided for the tracer study is lower than the preferred alternative; however the track study would not meet the goals and objectives of the project. The project has secured more than half of the funding necessary and the matching funds indicated by the applicant appear secure. The applicant also submitted an RDGP grant application for this project, a portion of which is listed as a match. DNRC does not allow projects to receive funding from both programs during the same grant cycle; as a result, it is recommended that the RRGL grant not be funded. The RDGP grant application has been recommended for funding.

The proposed project will affect the entire Upper Smith River Watershed, which encompasses approximately 1.3 million acres in central Montana. The project will provide critical information for area farmers, ranchers, and residents. Project results can be used to make informed water management decisions while protecting the resource.

Benefit Assessment

The primary benefits to renewable resources are improved resource management and preservation. The proposed project would result in measurable benefits of watershed management through better stewardship of the land and improved quantification of the potential to impact surface water from a groundwater development proposal. The proposed project would provide the necessary data for use in protecting and preserving existing groundwater and surface water. Improved water management will benefit the public using the Smith River for recreational purposes, as well as landowners using the river for irrigation.

A secondary resource benefit from the proposed project is resource preservation. The proposed project would result in measurable future renewable resource benefits through protection of surface water and groundwater and will contribute to the enhancement of Montana's fisheries and wildlife habitat by providing a means of controlling and understanding streamflow in the Smith River.

The primary citizen benefit from the proposed project is multiple uses. At the conclusion of the project, recreation and fisheries and wildlife habitat will be enhanced. All the above benefits are long-term and would be quantified through use of data collected as part of this project.

Environmental Evaluation

Environmental impacts associated with this project were evaluated and no apparent adverse long-term impacts will result. Beneficial results are primarily related to collection of significant hydrogeologic data for use in developing a groundwater model that will be available to regulatory agencies and the general public for use in future decision-making processes. Minimal short-term, construction-related impacts (from installation of the monitoring equipment) will be controlled through permitting, landowner access permission, and proper construction methodology.

Funding Recommendation

Due to DNRC rules preventing the award of grant funding from both the RRGL and RDGP programs, no funding is recommended for this project.

Applicant Name	Sunset Irrigation District	
Project Name	Gravity Flow Irrigation Pipelines	
Amount Requested	$ 100,000	Grant
Other Funding Sources	$ 1,382,026	NRCS EQUIP
	$ 1,465,266	RRGL Loan
Total Project Cost	$ 2,947,292	
Amount Recommended	$ 0	

Project Abstract (Prepared and submitted by applicant)

The purpose of the RRGL program is to enhance Montana's renewable resources. Water is a vital renewable resource for all of Montana, and the aim of this project is to modernize an existing flood irrigation system on Sunset Bench near Stevensville to a water and energy-efficient gravity flow sprinkler system. Currently, the water distribution system is a flood irrigation system with flows diverted from Burnt Fork Creek onto Sunset Bench near Stevensville. In addition, Sunset Irrigation District owns Burnt Fork Reservoir and releases additional water for irrigation late in the summer. About 40% of the lands irrigated have converted to sprinkler systems and are using electricity to pump water for the sprinklers out of the two main ditches (Highline and Baker ditches, which are about 15 miles long). The water delivery system will be modernized by changing to a gravity flow sprinkler system on the lands in the Sunset Irrigation District boundaries. This change will have incidental enhancements to many other important renewable resources.

The primary project goal is to eliminate dependence on electricity to pump water to existing sprinklers and to allow the remaining lands in the district to convert to sprinklers without depending on electricity to pump water. This conversion will increase irrigation efficiency and agricultural crop production and profits; it will also eliminate energy costs expected to rise dramatically when current electric rate contracts expire with the Ravalli County Electric Cooperative, Inc., in 2011. Less natural flow water will have to be diverted from Burnt Fork Creek to irrigate, and storage water from Burnt Fork Reservoir will be released in different amounts and at different or additional times.

This design and construction project proposes to:

- Place Highline Ditch, currently an open ditch, in a pipe to increase pressure of the water diverted from the headgate on Burnt Fork Creek;
- Eliminate Baker Diversion and replace the existing 36-inch steel pipeline with a 36-inch polyvinyl chloride (PVC) pipeline that can convey all the flow required by both ditch sytems;
- At the outlet of the 36-inch PVC pipeline, 3,200 feet of PVC pipe will drop down to Baker Ditch in the east one-half of Section 10 and continue to utilize Baker Ditch as an open ditch; and
- Place a 30-inch PVC pipe continuing west for 1.8 miles to convey irrigation water for the Highline Ditch system.

Additional benefits that improvements to the water distribution system on Sunset Irrigation District lands will have on other renewable resources include:

- Stabilize streamflows in Burnt Fork Creek, thus protecting water quality, controlling stream bank erosion, and improving riparian areas for wildlife and forage;
- Enhance sustainable fisheries in Burnt Fork Creek;
- Hydrologically reconnect portions of Burnt Fork Creek;
- Maintain a productive agricultural base of irrigated pasture and hay land;
- Preserve open space and green areas in the Bitterroot Valley represented by productive grazing lands and hay fields; and
- Create a water source available for the future needs of the Stevensville area and/or Burnt Fork watershed.

Technical Assessment

Project Background

The Sunset Irrigation District is currently flood irrigated over 53% of its irrigated acreage. Due to water availability and inefficiencies associated with flood irrigation, crops that are flood irrigated only receive six to nine inches of water per year, as opposed to the 14 inches required to meet the crop seasonal consumptive use. The remaining 47% of irrigators are sprinkler irrigating with sprinkler pump systems powered by electricity. Rising energy costs are making use of the current sprinkler irrigation systems less cost-effective for irrigators and energy prices are expected to escalate to the point where electrically powered sprinkler irrigation systems are cost-prohibitive to operate.

Technical Approach

Several alternatives to the selected project were evaluated, including the no action alternative. However, the other alternatives did not provide the desired operational or conveyance efficiencies, or were cost prohibitive. The selected alternative proposes to replace 1,900 feet of steel pipeline with 36-inch PVC piping, replace 1.8 miles of open ditch with 30-inch PVC piping, replace 1,600 feet of open ditch with 27-inch PVC piping, replace 2,640 feet of open ditch with 24-inch PVC piping, replace 1,290 feet of open ditch with 21-inch PVC piping, as well as replace many thousands of feet of open ditch with 18-inch, and smaller, PVC piping.

Specific tasks to be accomplished:

- Receive notification of receipt of funds from Montana/NRCS, July 2007;
- Prepare irrigation legal documents, execute loan documents, prepare contracts, engage project engineer, July-October, 2007;
- Prepare final design and construction documents, October 2007-January 2008; and
- Construct gravity flow system, October 2008.

The primary goal of the project is to convert the majority of the existing laterals in the irrigation district to a pressurized distribution system to reduce energy costs to irrigators. The pressurized distribution system would then provide the energy necessary to operate sprinkler irrigation systems over the entire district without consuming electricity. However, the technical discussion presented in the application package does not address how the district will provide irrigation water to those irrigators (approximately 53% of the district) who currently flood irrigate. Furthermore, the application package does not address the cost to the flood irrigators who convert from flood to sprinkler irrigation systems, (estimated by the NRCS to be approximately $923,000).

Project Management

The primary project manager for the selected action will be the district attorney, who will work with the project engineer and the irrigation district commissioners to coordinate the project. The attorney and engineer will report to the commissioners at monthly Irrigation district meetings, and more frequently as required by the project. The NRCS will develop the final design of the gravity flow system. The commissioners, district attorney, and the NRCS have sufficient expertise and experience to successfully manage and implement the selected action.

Financial Assessment

Budget Item	RRGL Grant	RRGL Loan	Match	Total
Administration	$0	$153,240	$0	**$153,240**
Professional & Technical	$0	$30,000	$0	**$30,000**
Construction	$100,000	$1,282,026	$1,382,026	**$2,764,052**
Total	**$100,000**	**$1,465,266**	**$1,382,026**	**$2,947,292**

The proposed budget appears sufficient and reasonable to fund the project. Material, labor, and equipment costs used to develop the budget appear reasonable and adequate. However, justification for the proposed action has

not been adequately demonstrated. The proposed budget leads to an assessment increase from $10.00/acre to $102.75/acre to fund this project; ability of irrigators to fund that type of increase has not been shown.

Benefit Assessment

The primary benefit to renewable resources is resource conservation. The proposed action will provide a measurable conservation benefit of up to 4.5 cfs throughout the irrigation season. The conserved water will be available to supplement the in-stream flow of Burnt Fork Creek. The conserved water will be protected with a water lease, a significant benefit to the fishery. The irrigators will realize additional benefit through expansion of land available for cultivation and increased crop yields.

Environmental Evaluation

Short-term construction related impacts are anticipated, but implementation of appropriate construction practices and adherence to permit requirements will minimize construction impacts to the greatest extent practicable. The proposed action will have no long-term adverse environmental impacts, and is anticipated to have significant long-term beneficial environmental impacts to the Burnt Fork Creek fishery.

Funding Recommendation

The DNRC does not recommend grant or loan funding for the proposed project at this time. The proposed rate increase to irrigators is significant, and the stated benefit of water savings in Burnt Fork Creek has not been adequately proven, given that 53% of the irrigators within the district are currently flood irrigating and would need to convert to sprinkler irrigation to achieve the stated water conservation benefit.

CHAPTER III

Coal Severance Tax Loans to Public Entities

Application Administration and Project Review Procedures

Applications for public loans are accepted by Department of Natural Resource and Conservation's (DNRC) Resource Development Bureau (RDB) until May 15 of each even-numbered year at the same time other applications are due from public applicants under this program. A $250 application fee is required with each application for a large public loan. These loans are provided with proceeds from the sale of coal severance tax secured bonds and frequently are offered at a subsidized interest rate. The subsidy is paid with coal tax revenues.

Project Solicitation

Applications for public loans are solicited through the same process DNRC uses to solicit other public grant and loan applications described in Chapter II. The availability of low-interest loan funds is widely advertised through direct mailings, press releases in association and commercial newspapers, and with contact made during promotional workshops conducted by DNRC, DOC, and DEQ at the local level. The same application form is used to solicit both grant and loan applications.

Application Review

All public loan applications received by the deadline are evaluated for completeness. Those missing documentation, application fees, or other basic requirements are notified and allowed time to submit additional material. After applications are reviewed for completeness, and any additional information needed is obtained from the sponsor, completed applications are given to the team of key reviewers for review and evaluation. Figure 1, in Chapter II, shows the flow of the application review process. Loans are reviewed to determine financial, economic, and technical feasibility.

Funding Recommendations

All feasible public loan applications eligible for funding receive a favorable funding recommendation if the applicant demonstrates the ability to repay the loan. DNRC's recommendation includes the amount of financing needed to meet project and financing expenses and the interest rate suggested. There is no maximum allowable funding level. Public loans are limited to the amount an applicant has the ability to repay under the standard repayment terms and by DNRC's bonding capacity.

Availability of Loan Funds

In 1981, the Legislature adopted SB 409 to provide up to $250 million in Montana coal severance tax bonds. Coal severance tax bonds are issued for financing projects and activities in the state specifically authorized by the Legislature. Statutes dictate that loans made from coal severance tax bond proceeds are to be administered by DNRC, and that DNRC is to review each project to determine its technical and financial feasibility.

Although the legislation was adopted in 1981, coal severance tax loans were not issued for the first few years because the constitutionality of the state's bonding authority under this program was initially challenged. In February 1984, the Montana Supreme Court ruled in the state's favor in Grossman v. State of Montana, and the first Montana coal severance tax bond was sold to finance loans during that same year.

In September 1985, the board of examiners adopted a general resolution pursuant to which all subsequent coal severance tax bonds have been issued. A copy of this resolution may be obtained from DNRC. The general resolution requires that bonds issued be secured on a parity basis. This means that all subsequent coal severance tax bond issues have the same right or ability on proceeds flowing into the trust fund to pay bondholders. However, to assure bondholders of sufficient coal severance tax revenue to meet debt service payments, the general resolution restricts the cumulative amount of bonds that can be issued. This restriction is more constraining than the $250 million

statutory limit. The general resolution does not allow any additional coal severance tax bonds to be issued if annual debt payments exceed 50% of the coal severance tax revenue allocated to the trust, plus 50 percent of the loan repayments received from local government borrowers.

Loan Repayment

Coal severance tax revenue is used to pay the difference between payments received from local government borrowers and the state coal severance tax bond payments. Thus, coal severance tax bonds are paid with revenue from payments from local government borrowers along with coal severance tax proceeds.

To implement these repayment provisions, the statute established a fund structure within the permanent coal tax trust fund. Fifty percent of coal severance tax proceeds flowing to the permanent trust fund are first deposited in the coal severance tax bond fund. A portion of the proceeds deposited in the bond fund are transferred to the debt service account to pay for the interest rate subsidies. An amount equal to a year's debt service payment on all coal severance tax bonds is held in reserve in the bond fund.

Proceeds that exceed the subsidy payments and reserve requirement are transferred to the coal severance tax school bond contingency account. This fund was established to provide security to school bonds issued during the 1993 biennium. The remaining proceeds are then transferred into the Treasure State Endowment Fund and the Coal Severance Tax Permanent Fund, which retains the remaining 80 percent of this income.

With the exception of the Treasure State Endowment Fund, the interest earnings associated with all account balances are transferred to the coal severance tax income fund. These interest earnings are then transferred to the general funds.

Interest Rates

Loans may be provided at a rate less than the rate at which the state bond is sold, for all or part of the term. During the financial review of each loan application, DNRC prepares a funding recommendation that includes a recommended interest rate subsidy. This subsidy is available for loan applicants only. Applicants who receive grant funding in conjunction with a loan do not receive an interest subsidy. Recommendations are developed to be consistent with past direction provided by the Long-Range Planning Subcommittee of the Legislature. In 1987, the Legislature directed that the recommended subsidy for municipal projects typically be based on the user rate as a percentage of the "median household income."

The schedule for subsidies with respect to municipal projects is presented below:

- If less than 1% of the median household income is required to pay user rates, no subsidy is recommended;
- If the user rate is at least 1% but less than 2%, a 1% interest rate subsidy for five years is recommended;
- If the user rate is at least 2% but less than 4%, a 2% interest rate subsidy for five years is recommended; and
- If the user rate is more than 4% of the median household income, a 3% interest rate subsidy for five years is recommended.

The basic interest rate on coal severance tax loans Is determined by the bond market at the time coal severance tax bonds are sold. The rate of interest on most loans from the program will vary in accordance with the rate on the state coal severance tax bonds. The basic rate of interest for each public loan financed from the proceeds of a single bond issue is the same. Subsidies vary, depending on legislative authorization.

Project Management

DNRC reviews each public loan application to determine whether the project is financially feasible. A project is considered financially feasible if sufficient funds can be made available to complete the project, and if sufficient revenue can be obtained to repay the loan and to operate, maintain, and replace the project. After a public loan is authorized by the Legislature and the project sponsor is ready to secure financing, DNRC performs a more thorough review of the applicant's ability to repay the loan. At this time DNRC may require access to the applicant's most

recent financial statement, budget document, and other documentation in order to assess whether the proposed project is truly financially feasible.

If the borrower provides documentation of the ability to repay a loan and all legal requirements to incur debt are met, a bond purchase agreement is prepared and executed to make specific requirements and covenants with respect to a project or improvements to a project being financed. Borrowers must acquire all property rights necessary for the project, including rights-of-way and interest in land needed for a project's construction, operation, and maintenance. As appropriate, these and other stipulations also are contained in a bond resolution. Unless otherwise authorized, each loan--including principal and interest--shall be payable over a term approved by DNRC not to exceed the term authorized by the Legislature. The cost of issuing the state's bond also is paid by borrowers.

Each borrower must agree not to sell, transfer, lease, or otherwise encumber the project, any portion of the project, or interest in the project without DNRC's prior written consent, Further, the borrower must notify DNRC of any changes or modifications in a project either before or during construction. Borrowers are required to acquire and maintain, with respect to the project, property, casualty, and liability insurance. Insurance policies must name DNRC as a certificate holder for notification purposes.

For local government revenue bonds, borrowers must establish a system fund to segregate the revenue of the system or district. Within the system or district fund, the following accounts are generally established: construction account, operating account, revenue bond account, reserve account, replacement and renewal account, and surplus account. These accounts ensure that the system's revenue and other funds are properly applied in a manner reasonably satisfactory to DNRC.

Loans are disbursed by warrants drawn by the state auditor, or by wire transfers authorized by the state treasurer in accordance with the provisions of this rule and the bond resolution. No disbursement of any loan funds shall be made unless DNRC has received from the borrower (1) a duly adopted and executed bond resolution in a form acceptable to DNRC; (2) an executed bond in a principal amount equal to the loan amount, also in a form acceptable to DNRC; (3) a certificate from an official of the governmental unit stating that no litigation is threatened or pending that would challenge the governmental unit's authority to undertake the project, to incur the loan, to issue the bonds, and to collect revenue; (4) an opinion from the bond counsel that the bond is a valid and binding obligation of the borrower payable in accordance with its terms; and (5) any other closing certificates or documents that DNRC or the bond counsel may require.

Project Monitoring

Borrowers must maintain proper and adequate records of accounts that show the complete and correct entries of all receipts, disbursements, and other transactions related to the project and, if applicable, the monthly gross revenue derived from the project operation. Any segregation and application of the gross revenue resolution also must be shown in such reasonable detail as may be determined by the borrower in accordance with generally accepted accounting practices and principles.

Loan agreements require quarterly progress reports, expenditure reports, a final report, and annual financial reports over the term of the loan. Projects are closely monitored each quarter when quarterly reports are submitted. Borrowers submit documentation for all expenditures and these are checked against the loan agreement.

Under the usual terms of DNRC's bond purchase agreement, each borrower must comply with reporting requirements during the construction period and continue to do so throughout the term of the loan. According to these requirements, within 180 days after the close of each fiscal year, the borrower must prepare and supply to DNRC an appropriate financial report with respect to the project for such fiscal year. Where applicable, this report includes a statement that details the project's income and expenditures for the fiscal year; the identification of capital expenditures that separate them from operating expenditures; a balance sheet as of the end of the fiscal year; the number of premises connected to the project at the end of the fiscal year; and the amount of cash on-hand in each account of the fund at the end of the fiscal year. The borrower must also provide a list of the insurance policies and fidelity bonds in force at the end of the fiscal year showing the amount of coverage, the risks covered, the name of the insurer or surety, and the expiration date of the policy or bond.

Figure 4 Coal Severance Tax Loans / Resource Development Public Loan Balances

Applicant	Balance Due	Applicant	Balance Due
Beaverhead County/Red Rock Water and Sewer District	$1,590,600	Malta	$1,956,697
Bitterroot Irrigation District	515,038	Miles City	478,657
Bozeman	131,893	Mill Creek Water and Sewer District	506,102
Bozeman	173,518	Pondera County Canal and Reservoir Company	141,594
Broadwater Power Project	17,245,000	Pondera County Canal and Reservoir Company	111,554
Buffalo Rapids Irrigation District	779,138	Sage Creek Water District	346,611
Daly Ditches Irrigation District	305,483	Sanders County Water District at Noxon	46,317
Denton	24,810	State Water Projects Bureau, DNRC	
Dutton	63,556	Bair Dam	818,244
Dutton	11,370	Broadwater-Missouri Pipespan	287,579
East Bench Irrigation District	361,846	Deadman's Basin (Barber Canal)	303,938
East Helena	57,629	Deadman's Basin	55,000
Ekalaka	8,952	East Fork Rock Creek Dam	550,000
Fairview	83,280	Nevada Creek Dam	434,905
Flathead County for Evergreen	1,850,288	North Fork of the Smith River	412,188
Forsyth	186,180	Petrolia Dam	246,663
Fort Benton	359,865	Shields Canal Water Users Association	2,742
Gardiner - Park County Water District	86,432	Sun Prairie Water and Sewer District	179,288
Glasgow	277,813	Sun Prairie Water and Sewer District	102,901
Harlem	67,450	Tin Cup Water and Sewer District	186,037
Huntley Irrigation District	839,004	Tongue River Project	9,271,795
Huntley Irrigation District	201,262	West Yellowstone	44,260
Huntley Irrigation District	73,658	West Yellowstone	121,430
Huntley Irrigation District	212,839	White Sulphur Springs	36,241
Hysham	134,707	Wibaux	96,827
Lower Willow Creek	98,081	**TOTAL**	**$41,708,094**

2007 Loan Recommendations:

MT DNRC	Ackley Lake Dam Rehabilitation	$ 200,000 *
MT DNRC	East Fork Siphon Replacement	$ 400,000 *
MT DNRC	Smith Creek Canal	$ 50,000 *
MT DNRC	Municipal Refinance	$ 3,000,000
Total Loan Requests		$ 3,650,000

- Project descriptions are found in Chapter II.

This biennium, DNRC is requesting loan authorization of up to $3 million to assist communities with either refinancing of infrastructure debt or loans to communities with special circumstances that can't wait until the next legislative session. These loans would be given at a reduced interest rate (3%).

Examples of loans would be:

- Refinancing debt for a community that would like to hook onto a regional water system, but cannot afford old debt and the new costs of the regional system;
- A community that has an opportunity to get construction supplies at a reduced rate, such as pipe for a future project.

Figure 5 Coal Severance Tax Loans / Water Development Public Loan Balances

Applicant	Balance Due
Antelope County Water and Sewer District	$ 53,351
Cut Bank - North Glacier Water and Sewer District	39,836
Park County	38,796
TOTAL	**$ 131,983**

Figure 6 Public Loans Authorized in 2003 and Seeking Reauthorization

Applicant	Amount	Rate
DNRC Martinsdale Dam Riprap Project	$ 90,000	Market-not to exceed 4.5%
Mill Creek Irrigation District	$ 572,000	Market-not to exceed 4.5%

CHAPTER IV

Renewable Resource Grants and Loans to Private Entities

Grant Application Administration and Project Review Procedures

As discussed in Chapter I, applications for water-related projects from any individual, association, for-profit corporation, or not-for-profit corporation, may be considered for funding. Only water-related projects may be funded. They must have quantifiable benefits that will exceed costs. Projects must also provide public benefits in addition to any private benefits.

Grant Project Solicitation

To solicit applications from private entities that provide significant public benefits, DNRC has chosen to target public water systems operated by private water user associations and small agricultural projects that need help. Agricultural projects have included inspection of private high hazard dams and water-measuring devices on chronically dewatered streams. To this end, DNRC has contracted with Montana Rural Water Systems, Inc., (MRWS) to solicit projects from private drinking water systems, review projects, and advise DNRC on their validity, feasibility, and performance. Dam and water-measuring projects were solicited by the Dam Safety Bureau and the Water Management Bureau of the Water Resources Division of DNRC. In addition to the projects solicited by the above-mentioned organizations, DNRC also accepts applications at any time from any water system. Grantees are given one year to complete the project.

Information requested in the application includes:

- Name, address, and telephone number of applicant;
- Description of the problem, including the history and alternative methods of rectifying the problem;
- Complete budget information, including funding sources and cost comparatives of the alternatives;
- Description of the public and private benefits of the project and the need for and urgency of the project;
- Environmental impacts of the project, both positive and negative; and
- Technical information and approval, if necessary, by DEQ, EPA, or other responsible enforcement agency.

Grant Application Review

All applications received by MRWS were evaluated and ranked according to the extent each application represents a project that is critically needed, will protect public health, provides opportunities for resource conservation, and improves the environment. Applications received by Dam Safety and Water Management bureaus were reviewed by those units, and submitted to the RDB with a recommendation. Other applications are also evaluated by DNRC staff. All applicants must hold or be able to acquire all necessary lands, other than public lands, and interests in the lands and water rights necessary for the construction, operation, and maintenance of the project.

Criteria for evaluating private grant, is similar to the criteria outlined in Chapter II for public grants. As with public grants, private grants are also evaluated to determine the potential adverse environmental impacts. Projects that would result in significant impacts would not be recommended for funding by DNRC until an environmental assessment or environmental impact study has been completed. Recommendations are made to minimize impacts and to ensure that appropriate steps are taken to protect the environment. Any potable water system project must be approved by DEQ to ensure that it meets state standards.

Grant Funding Recommendations

According to the Montana Constitution, the Legislature may not appropriate funds to private individuals. However, state entities have the authority to distribute public funds to private individuals. To provide for private grants in 1993, the Legislature appropriated $100,000 to DNRC to fund grants for private entities. Since 1993, with the exception of the 2003 session, the Legislature has appropriated $100,000 to DNRC each biennium to fund grants to private entities. In 2005 DNRC received no funding from the Legislature for the private grant program.

DNRC's role is to review and screen grant requests to determine whether the proposed projects are technically and financially feasible. DNRC will evaluate MRWS, Dam Safety, and Water Management recommendations based on criteria outlined in statute; within funding constraints, the highest ranked projects will be recommended to DNRC's director for funding. Feasibility studies, research, and/or public information projects will not be recommended for funding. By law, grant funding for any project may not exceed 25 percent of the total estimated cost of the project.

Grant Project Management

After DNRC's director has acted on the funding recommendations prepared by staff, DNRC notifies the applicants of their funded or not-funded status. DNRC does not reimburse any project cost incurred before a formal funding agreement is executed.

Grant Project Monitoring

To ensure the program's intent is met, procedures for monitoring projects are primarily driven by a project grant contract agreement between DNRC and the project sponsor. The equivalent of one full-time staff member administers active private grants and all private loans. Budget and staffing constraints preclude DNRC's site involvement at all projects.

Project sponsors must: (1) pay all project costs, (2) submit a claim and obtain reimbursement of allowable costs from DNRC, or (3) arrange for an advance of funds. Invoices may be submitted monthly, and all costs must be supported by invoices, receipts, or both.

Grant Project Evaluation

Grant agreements require expenditure reports and a final report. During a project's contract term, the project sponsor must submit quarterly reports to DNRC. These reports must reflect the percentage of the project completed, the project costs to date, any problems encountered, and the need for any amendment to the grant contract. In response to changes in project scope of work, time line, or budget, amendments to the grant agreement are prepared and issued. Amendments will continue to be the technique used to modify projects to adjust for changes in scope, budget, or timeliness. Figure 7 lists the private grants that have been approved since October 2004.

FIGURE 7 Private Grant Applications Received Since October 2004

PROJECT SPONSOR	AMOUNT
Eastgate W&S Assoc.	5,000.00
Pondera Co. Canal & Reservoir	5,000.00
Eugene Long	5,000.00
Buzz Inn, LLC	5,000.00
George Rebich	593.70
Malesich Ranch	1,399.59
Meine Brothers	882.95
Porch Innes Ditch	268.75
Eastgate W&S Assoc.	5,000.00
Camas Creek Cattle & Sheep	443.00
Loren Giem	930.69
Roscoe Pilon	193.17
Hans M. Marks	5,000.00
Barnett WUA	5,000.00
Pondera Co. Canal & Reservoir	1,248.00
Rebish & Konen Livestock	480.00
Louise Peters	206.00
Ronald Jackson	489.86
Bass Lake Reservoir Co.	247.13
TOTAL	**$42,382.84**

Private Loan Application and Project Review Procedures

Loans to private individuals also must promote and advance the beneficial use of water and allow Montana's citizens to fully use the state's water. Loan funding became available in 1981 when the Legislature earmarked $350,000 under the former Renewable Resource Development program to finance loans to private individuals. At the same time, DNRC was given authority to issue general obligation bonds to finance private loans.

Loan Project Solicitation

Projects are solicited through press releases, public meetings, and word of mouth. Promotion by irrigation equipment dealers aware of the program, encouragement from local NRCS offices and conservation districts, and presentations by staff at various industry functions also help to solicit applications for loan funding.

Loan Application Review

Loan applications are submitted at any time. DNRC staff review the application for completeness and request additional information when needed. Technical aspects of the project are usually completed by NRCS or a private engineer. If the project is not designed by a qualified professional, DNRC will closely review the project design and specifications. Financial review is completed by DNRC and includes an evaluation of the applicant's financial strengths, weaknesses, and risk-taking ability. This also includes an evaluation of the security offered and a determination of DNRC's relative security. All of these factors are considered in the recommendation to the loan committee.

Loan Funding Recommendations

Applications that meet feasibility and eligibility criteria are funded if the applicant demonstrates the ability to repay the loan. Projects must be technically and economically feasible, and must pay for themselves over the life of the installation through water savings, increased crop production, or other measurable benefits.

For private individuals, $200,000 is the maximum loan amount allowable under the RRGL program. The 1997 Legislature amended the statute to allow DNRC to accept applications and loan funds to water user associations; these loans are limited to $300,000. The 2005 Legislature amended the statute to raise the limits to $400,000 for individuals and $3 million for water user associations. Loans are for a term not longer than 30 years or the estimated useful life of the equipment purchased or materials installed. For new irrigation equipment, 15 years is the allowable term; for used irrigation equipment, the term usually is 10 years or less.

Availability of Loan Funds

DNRC has the authority to issue general obligation Renewable Resource bonds totaling up to $30 million to finance private loans. Changes made by the 1995 Legislature allow DNRC to have up to $30 million of general obligation Renewable Resource bonds outstanding. Since the program's inception, bonds totaling about $35 million have been issued to finance private loans. Presently, $16.5 million in bonds is outstanding. To finance loans, DNRC sells bonds on the open market.

Interest Rates

The rate of interest on the state's general obligation bond determines the interest rate for private loans. The basic rate for private loans has varied from 4.03 percent to 9.5 percent. Tax law has also contributed to increased interest rates. Before 1986, state bonds sold to finance DNRC projects were tax-exempt. The tax law of 1986 prohibited financing private ventures with tax-free bonds. Therefore, bond sales to finance private projects after 1986 have been taxable (federal taxable, state tax-exempt). Because investors demand a higher interest rate on investments when their investments are subject to federal income tax, sale of these taxable bonds resulted in higher interest rates than those of the earlier, tax-exempt bonds.

In addition to interest costs, borrowers also pay a share of bond issuance costs proportionate to the percentage of the bond used to finance their loan. Higher interest rates and issuance cost charges have made private loans less attractive than those offered when the program first started. Although less attractive, private loans remain competitive with conventional financing because the rate on taxable bonds is still slightly lower than interest rates obtainable from conventional financing. DNRC loans also provide financing at a fixed interest rate for a period longer than that available to borrowers through their local financial institutions.

Longer terms and competitive fixed interest rates, in most cases, continue to make these loans attractive to borrowers interested in long-term financing for major equipment or system purchases. The exceptions are loans for less than $10,000. For small loans, closing costs will outweigh the benefit of DNRC's lower interest rate. DNRC recommends that projects needing less than $10,000 seek funding from other sources. Closing costs include a $150 nonrefundable application fee and title insurance.

Loan Project Management

Borrowers must acquire all property rights necessary for the project, including rights-of-way and interest in land needed for the construction, operation, and maintenance of the project. Title insurance, a title opinion, or other documents showing the ownership of the land, mortgages, encumbrances, or other liens must be provided to DNRC.

Loans must be secured with real property valued higher than the loan amount requested. According to statute, security equal to at least 125 percent of the loan's value is required. Loans may be secured with a first or second real estate mortgage, an assignment of accounts receivable, certificates of deposit, or similar securities, or other security as accepted by DNRC. To adequately secure the state's interest, DNRC requires a security equal in value to at least 150 percent of the loan. For example, a loan application for $100,000 would require real estate security of $150,000. DNRC will accept a second mortgage on property if the state's interest can be adequately secured. DNRC may require an appraisal of real property used for securing a loan. Cost of the appraisal must be paid by the applicant.

After an application is approved for financing, interim financing may be secured by the applicant, with interest costs included in DNRC's loan financing. The RRGL program does not refinance existing loans; only new ventures are eligible.

Loans to private entities are disbursed by warrants drawn by the state auditor or wire transfers authorized by the state treasurer. Before disbursement can occur, all loan documents must be properly signed, security documents must be filed with the county clerk and recorder, the final title insurance policy must be in force, and an invoice must be submitted by the borrower to document the use of funds.

Loan Project Monitoring

Project construction is monitored by NRCS if cost-share money is involved, by the borrower if he has a vested interest in successful completion of the project, and by bureau staff through field visits when possible.

Borrowers must maintain proper and adequate records of accounts that show the complete and correct entries of all receipts, disbursements, and other transactions related to the project and, if applicable, the monthly gross revenue derived from the project's operation. Any segregation and application of the gross revenue resolution also must be shown in such reasonable detail as may be determined by the borrower in accordance with generally accepted accounting practices and principles.

Loan Project Evaluation

Through its monitoring efforts, DNRC conducts an ongoing effort to evaluate the projects funded under the RRGL program. DNRC will continue to review each final report as has been done in the past. This review will be documented to indicate whether the project successfully completed the objectives outlined in the original application as specified in the loan agreement.

Private Loan Projects Previously Funded

As of August 31, 2004, 377 private loans had been approved under the RRGL program. A total of $32,072,131 has been advanced, and $471,193 is committed to projects that have not requested disbursements. Figure 8 lists the private loans approved since October 2004. Loans have been used to finance projects involving new and refurbished irrigation systems, riprap, irrigation wells, canal siphon replacement, and refurbishing private drinking water systems.

FIGURE 8 Private Loan Applications Approved Since October 2004

Contract Number	Loan Amount		Contract Number	Loan Amount
05-3461	$ 180,930		06-3486	$ 55,000
05-3462	17,175		06-3488	134,375
05-3463	75,000		06-3489	76,000
05-3464	173,580		06-3490	35,000
05-3465	150,000		06-3491	72,000
05-3466	35,965		06-3492	65,250
05-3467	54,365		06-3493	74,000
05-3468	50,320		06-3495	102,700
05-3469	29,500		06-3496	100,000
05-3470	62,910		06-3497	76,485
05-3471	56,205		06-3498	408,745
05-3472	61,561		06-3499	95,000
05-3473	170,000		06-3500	95,000
05-3474	30,000		06-3501	170,550
05-3476	79,000		06-3502	122,950
05-3477	58,410		06-3503	56,000
05-3478	125,545		06-3405	63,150
05-3479	$ 197,500		**TOTAL**	**$ 3,380,171**

CHAPTER V

Irrigation Development Grants

Background

The Vision 2005 Task Force organized by the Montana Department of Agriculture set a goal to double the value of agriculture in Montana by 2005. One of the key components of this vision was to develop 500,000 acres of new irrigation projects that would grow high-value crops such as potatoes and sugar beets. The Irrigation Development Program was developed and originally funded by the 1999 Legislature to accomplish this goal.

Program staff have worked with groups throughout Montana to pursue the development of new projects and to find ways to increase the value of existing irrigation. Financial, technical, and legal assistance were also provided.

Grants up to $15,000 per irrigation project are available through this program. Both private and public applications are considered. Projects are eligible if they lead to development of new irrigation or increase the value of agriculture for existing irrigated lands. Project examples include installing test wells for irrigation, conducting feasibility studies on irrigation system improvements or new irrigation projects, or providing information to the public, such as agriculture tours to educate producers on new technology.

Irrigation Development Grants Approved FY 2004 and FY 2006
(FY 2005 Legislature did not approve grant funding)

Project Sponsor	Project	Amount
FY 2004		
Chester Irrigation Project, LLC	Irrigation Efficiency Improvements	$ 15,000
Fergus County Applicant	Irrigation Test Well Drilling	5,000
Paradise Valley Irrigation District	Consultant for Pick Sloan Pumping Power	10,000
Weaver Consulting	Consultant for MT Natural Resources Act	4,000
West Crane Irrigation District	Irrigation Planning Consultant Services	6,000
Will & Carlson	Consultant for Pick Sloan Pumping Power	20,000
FY 2006		
Pondera Co. Canal & Reservoir (PCCR)	Study and Design Three New Reservoir Sites	14,000
Chester Irrigation Project	Technical Assistance for Project Coordination	15,000
Bostana Dairy	Drill Test Wells on Irrigated Ag. Land	9,500
Billings Bench Water Association	Professional Assistance to Prepare Designs/Budgets	10,000
Ric Holden	Implement Sprinkler System for Water Conservation	10,000
Vern Stokes/ PCCR	GIS Data Management/Computers	6,000
Fort Peck Water Users	Professional Assistance to Prepare Designs/Budgets	10,000
Hathaway Water Users	Professional Assistance to Prepare Designs/Budgets	9,800
Garfield County CD	Professional Assistance to Prepare Feasibility Study	22,000
Fort Peck Tribes	Professional Assistance to Review Socioeconomic Study	15,000
Ouality Farms, LLC	Drip Irrigation System for Water Conservation	1,400
Pondera Co. Canal & Reservoir	Application of Canal Seal to the PCCR	9,636
MT Salinity Control Assoc.	Document the Leakage Conditions of the PCCR	2,800
	TOTAL	**$ 195,136**

CHAPTER VI

Emergency Grants And Loans

Application Administration and Project Review Procedures

In addition to the regular funding available during each RRGL program funding cycle, limited funds are also available for immediate projects necessary to address qualified emergencies. These funds are reserved to help finance emergency projects otherwise eligible for grant or loan funding which, if delayed until legislative approval could be obtained, would result in substantial damages or legal liability for the project sponsor.

Applications for emergency grants and loans are accepted by DNRC from public entities when an emergency occurs. No application fee is required.

Project Solicitation

No formal solicitation for applications is conducted. Engineering firms and other consultants likely to be involved with eligible emergency projects have been informed that emergency funds exist. During presentations to provide information relative to public grant and loan programs, the availability of emergency funding is also discussed.

To request funds, applicants are required to submit a letter containing:

- A description of the problem;
- A statement of when the problem occurred;
- The proposed solution;
- Cost estimates with documentation; and
- Documentation of the community's financial condition and ability to otherwise pay for the proposed repairs.

Application Review

As with funding for other renewable resource projects, emergency funds must be used for projects that enhance renewable resources in the state through conservation, development, management, or preservation; for assessing feasibility or planning; for implementing renewable resource projects; or for similar purposes approved by the Legislature. All applications submitted are evaluated for completeness. Sponsors for those applications requiring more documentation are notified and asked to submit additional material immediately.

Requests for emergency funds are reviewed by DNRC staff. DNRC's engineer investigates the problem to determine feasible alternatives. The project is evaluated to determine its eligibility for funding under the RRGL program. At a minimum, projects must meet the statutory requirements of 85-1-605 (4), MCA, to merit further consideration. Engineers and technical experts from other state agencies may be solicited for technical opinions, guidance, and information.

Funding Recommendations

As discussed in Chapter I, statute allows DNRC to request up to 10 percent of the grant funds available each biennium to fund emergency projects. DNRC typically requests $100,000 for emergency grants. DNRC will again request $100,000 during the 2007 session to fund emergency grants for fiscal years 2008 and 2009.

Funding recommendations are made on a case-by-case basis within the constraint of available funding. As information is gathered and documented, a staff report with funding recommendations is written and presented to the DNRC director for an official decision as to whether the project should receive emergency grant or loan funding. A maximum of $30,000 in emergency grant funding is typically placed on an individual project; the limited total amount of funding available each biennium dictates close management of funding limits for each emergency project.

Project Management

Based on the decision of the DNRC director, the sponsor is notified of the status of its emergency grant or loan request. If successful, the applicant and DNRC enter into a formal agreement, and the project is managed in the same manner as other grant and loan projects funded by the RRGL program.

Emergency Grant and Loan Applications in Fiscal Years 2006 and 2007

Each emergency grant request submitted during fiscal years 2006 and 2007, to date, was reviewed by DNRC staff and, based on staff recommendation, was approved or denied for funding by the DNRC director. Total funding for all emergency grants may not exceed the legislative biennial appropriation for emergency projects under the RRGL program; $10 million per biennium is available for emergency loans. No emergency grant may be funded in excess of the biennial appropriation less the total of all emergency grants funded previously during the biennium.

Authorized Emergency Loan Projects

No emergency loan applications were received during 2005 or 2006.

Authorized Emergency Grant Projects

In 2005, the Legislature authorized $100,000 for emergency grants. During the 2006-2007 biennium, to date, no emergency projects have been funded.

CHAPTER VII

Summary of Grants to Public Entities, October 2004 - September 2006

The status of all projects authorized, October 2004 through September 2006, is reported here. Project status is reported in four categories: Completed, Active, Authorized but not executed, and Terminated.

Within each of these categories, projects are listed alphabetically by the name of the grant recipient.

Grant Projects Completed Since October 1, 2004

Ashland WSD
Improvement of Wastewater Facilities
RRG-02-1182
A $100,000 grant was authorized in 2001. A grant agreement was executed in February 2002. The purpose of the project was to improve the sewage lagoon system for the town of Ashland. The project was completed in December 2005, and all funds were expended.

Beaverhead County
Big Hole Watershed Management Project
RRG-02-1166
A $75,000 grant was authorized in 2001. A grant agreement was executed in September 2001. All funds were used to support community-based water management in the Big Hole basin. Water resource data collection and hydrologic modeling were completed and presented in the technical and final reports in spring 2005.

Bitter Root Irrigation District
Irrigation System Water Use and Water Quality Improvements, Phase 2
RRG-04-1220
A $100,000 grant was authorized in 2001. A grant agreement was executed in April 2004. Funds were used to accomplish five tasks: (1) to add flow sensors and radio units to calibrated flow measurement sites along the main canal; (2) to line critical sections of the main canal; (3) to evaluate options for the proposed Dry Gulch Siphon. The Dry Gulch Siphon evaluation included costs, easements, a feasibility study, and an alternative evaluation; (4) design and refurbish the Skalkaho Creek diversion structure; and (5) work on the Lost Horse diversion structure weir. The grant is complete, and all funds have been disbursed.

Black Eagle WSD
Water System Improvements
RRG-06-1258
A $50,000 grant was authorized in 2005. A grant agreement was executed in August 2005. The funds were used to provide for the design and specifications of aging water mains. The project was satisfactorily completed in September 2006. All funds were expended.

Buffalo Rapids Irrigation District
Refit of Glendive Pumping Plant
RRG-04-1193
In 2003, the district received a $100,000 grant authorization to design and construct improvements to the Glendive 1 Pumping Plant. Included were replacement of an 84-inch buried discharge manifold, the rebuild of two pumps and motors, and upgrades to telemetry and control systems. The project is complete, and all funds have been disbursed.

Canyon Creek Irrigation District
Canyon Lake Dam Rehabilitation Project
RRG-02-1171
In 2001, the district received a $100,000 grant to make structural improvements necessary to bring Canyon Lake, a high hazard wilderness dam west of Hamilton, into compliance with dam safety standards. In 2002, the district hired a geotechnical engineering consultant to evaluate options for both Canyon Lake Dam and Wyant Lake Dam, a smaller dam higher than Canyon Lake Dam in the same high-mountain basin. It was decided to make improvements to Canyon Lake Dam that would bring it into dam safety compliance and increase the storage capacity of Canyon Lake. Because the storage capacity of Canyon Lake is being increased, no work is planned for Wyant Lake Dam, and the level of that lake will be kept at natural levels. The Canyon Lake Dam Improvements Project bid and was completed during the summer and fall 2004. All grant funds have been disbursed.

Canyon Creek Irrigation District
Wyant Lake Dam Rehabilitation Project
RRG-02-1170
Wyant Lake Dam is above Canyon Lake Dam in the same high-mountain basin. Classified a high hazard dam, the structure faced either rehabilitation or removal from service. In 2001, the district was awarded a $100,000 grant to be used in coordination with the Canyon Lake grant reported above to bring the district's facilities into compliance with dam safety standards and maintain a storage facility for the system. It was decided to make improvements to Canyon Lake Dam, as described above, and to remove Wyant Lake Dam from service. This grant, along with the grant for Canyon Lake Dam, was utilized to make improvements to Canyon Lake Dam including spillway modifications to the existing spillway and construction of a new emergency spillway. This work increased the capacity of the district's combined storage facilities and brought them into compliance with dam safety requirements.

Charlo Water District
New Water Well
RRG-02-1143
A $100,000 grant was authorized in 2001. A grant agreement was executed in July 2001. Grant funds were used for a new well to provide adequate water for the water users under all conditions. The Charlo Water Well project was delayed because the Charlo Water District could not obtain a water right for the new well. Water rights were not being issued by DNRC on the Flathead Reservation because of a water right jurisdiction dispute between DNRC and the Confederated Salish and Kootenai Tribes. With the passage of HB 683 during the 2003 legislative session, Charlo Water District was able to proceed with drilling a new well in February 2004. The project is complete, and all funds have been disbursed.

Chinook Division Joint Board of Control
Fresno Dam Gate Leaf Seal Replacement Project
RRG-04-1196
In 2003, the board received a $100,000 grant authorization to provide its share of the cost to replace the seals and frames on each of two outlet gates on Fresno Dam. The USBR, owner of the dam, bid and contracted for the construction of the project in 2004. The project is complete, and all funds have been disbursed.

Flathead Basin Commission
Implementation of Voluntary Nutrient Reduction Strategy
RRG-02-1165
A $100,000 grant was authorized in 2001. A grant agreement for $99,697 was executed in September 2001. Funds were used for the implementation of the Voluntary Nutrient Reduction Strategy (VNRS) and to fund critical nutrient reduction projects to help meet the long-term water quality needs of Flathead Lake. Specific activities included the TMDL action plan; watershed group facilitation and education, research and development; VNRS coordination; and grant writing. This project was completed in fall 2004.

Glen Lake Irrigation District
Therriault Creek Point of Diversion Infrastructure and Fish Habitat Project
RRG-02-1185
A $94,500 grant was authorized in 2001 for design and construction of a replacement diversion in Therriault Creek to be completed with environmental improvements. The grant agreement was executed in May 2002. Construction was complete in fall 2005, and all funds were expended.

Hamilton, City of
Water System Improvements Project
RRG-04-1199
In 2003, Hamilton received a $100,000 grant authorization as part of the funding package for a large water system improvements project. Included in the project were a new water storage reservoir, two new wells, a new boost pump station, and distribution line replacement in downtown Hamilton. The project bid and was completed in 2004. All grant funds have been disbursed.

Hill County
Beaver Creek Dam Rehabilitation Project
RRG-02-1147
Hill County received a $75,000 grant in 2001 for an engineering investigation to identify upgrades to Beaver Creek Dam necessary to bring it into dam safety compliance. In 2001, an engineering firm was selected to study the dam, and final recommendations were made in 2002. Improvements identified in the study and design of a toe berm were completed in 2005. All grant funds have been disbursed.

Hinsdale WSD
Wastewater System Improvements
RRG-03-1189
A $100,000 grant was authorized in 2001 for design and construction of a new wastewater collection system and a package wastewater treatment plant. The project was contracted in November 2002. The project was completed in spring 2005.

Hot Springs, Town of
Water Systems Improvement
RRG-02-1149
A $100,000 grant was authorized in 2001. A grant agreement was executed in July 2001. Funds were used to replace the community's water distribution system. Additional funding from Rural Utility Services was obtained for this project, eliminating the need for project phasing. The town of Hot Springs bid and contracted for construction of the project in 2003, and the project was completed in 2004. All grant funds have been disbursed.

LaCasa Grande WSD
Water System Improvements
RRG-02-1183
A $100,000 grant was authorized in 2001 for design and construction of a new water well, new water tank, pump station, and installation of water meters. The grant agreement was executed in May 2002. The project was completed in fall 2004, and all funds were expended.

Lewis and Clark County Water Quality Protection District
Groundwater Sustainability in the North Hills Area, Helena
RRG-04-1202
A $50,000 grant was authorized in 2003. A grant agreement was executed in June 2004. The project goal was to collect geologic and hydrologic data and present interpretations needed for appropriators, regulators, and homeowners to evaluate the management of groundwater within the North Hills area. Data were also used to construct a water budget for the North Hills aquifer to help understand what portion of the water budget is currently appropriated to water users. This was accomplished by creating a small-scale geologic map of faults, joints, and fractures; establishing a network of monitoring wells that can be sampled for water level and water quality; and quantifying sources of groundwater recharge and discharge to the extent possible. The project was completed in July 2006. A final report is expected in October 2006.

Lewis and Clark CD
Willow Creek Erosion/Water Quality Improvement Project
RRG-02-1157
A $100,000 grant was authorized in 2001 for stabilization of stream banks in the game range segment of the Willow Creek system. The goal was improved water quality. A grant agreement was executed in August 2001. Construction was completed in December 2004, and all funds were expended.

Lower Willow Creek Irrigation District
Lower Willow Creek Dam Assessment and Rehabilitation Project
RRG-02-1148
In 2001, the district received a $100,000 grant and a $1.35 million loan authorization to determine and mitigate seepage problems at Lower Willow Creek Dam in Granite County. A well-monitoring program and associated remote monitoring equipment were installed in 2001, and seepage flows were monitored to determine location and probable cause. It was determined that internal grouting was necessary to correct the problem. The project bid and was successfully completed in 2004. All grant funds have been disbursed.

Madison County Alder WSD
Wastewater System Improvements
RRG-02-1173
A $100,000 grant was authorized in 2001 for design and construction of a gravity collection system, sewage lift station, new two-cell lagoon system, and a treated wastewater disinfection and discharge irrigation system. The grant agreement was executed in October 2001. Grant funds were used primarily for final engineering costs. The project was completed in October 2004, and all funds were expended.

Manhattan, Town of
Wastewater System Improvements
RRG-03-1188
A $100,000 grant was authorized by the Legislature in 2001 for design and construction of a collection system and lagoon with spray irrigation. The project was contracted in October 2002. The Renewable Resource grant was used to replace the collection system. The collection system project was completed in 2005, and all funds were expended.

Milk River Joint Board of Control
St. Mary Siphon Expansion Joint Replacement
RRG-04-1208
A $100,000 grant was authorized in 2003 to purchase materials needed to repair the St. Mary Siphon including pipe segments and expansion contraction joints. The pipe and expansion joints were manufactured and delivered, and the contract closed out in July 2005. Installation of the pipe and joints is still in progress.

Montana Department of Agriculture
Monitoring Well Network to Assess Agricultural Chemicals
RRG-04-1210
A $100,000 grant was authorized in 2003. A grant agreement was executed in September 2003. The purpose of the project was to drill new wells to assess the presence of agricultural chemicals. This project was completed in June 2006, and all funds were expended.

Montana Department of Natural Resources and Conservation
North Fork of the Smith River Dam Rehabilitation Project
RRG-05-1230
In 2003, the DNRC State Water Projects Bureau received a $100,000 grant for the construction of improvements to bring the North Fork of the Smith River Dam into compliance with current dam safety requirements. Included were the design and construction of primary spillway improvements, construction of a new emergency spillway, leveling the dam crest, and installation of a new internal drain system to control seepage. The project was completed in 2005, and all grant funds have been disbursed.

Montana Department of Natural Resources and Conservation
Seepage Monitoring Project – DNRC Dams
RRG-04-1207
A $97,646 grant was authorized in 2001. A grant agreement was executed in December 2003. The purpose of this project was to establish a seepage monitoring program for the Painted Rocks, Willow Creek, Cataract, and Yellowater dams. These dams were chosen due to surficial evidence that problems were developing that could pose threats to public safety. The primary focus was installation of monitoring wells and piezometers in each dam. The funding in this grant was used mainly to contract with a private drilling firm to install monitoring wells and a private soil testing firm to drill hole samples. This project was completed in 2005, and all funds were expended.

North Powell Conservation District
Water System Improvements Project
RRG-05-1200
A $62,600 grant was authorized in 2003. A grant agreement was executed in July 2003. Funds were used to develop targets through the DEQ TMDL program to improve water quality; identify restoration projects; reduce soil loss on agricultural lands and logged areas through minimizing soil bank erosion and implementation of road BMPs; improve fishery and aquatic habitat and recreation opportunities; and protect species of special concern. The goals of this project were met by developing a basinwide action plan. The project was completed in December 2005.

Park County
North Park County Water Resources and Management Plan
RRG-04-1201
A $75,000 grant was authorized in 2003. A grant agreement was executed in July 2003. Funds were expended to collect and evaluate hydrogeologic data to develop a water resources protection and management plan for northern Park County. The project was completed in December 2005, and all funds were expended.

Paradise Valley Irrigation District
Hillside Lateral
RRG-04-1224
A $100,000 grant was authorized in 2003 for purchase and installation of approximately 3,500 feet of pipe for a hillside lateral and appurtenances for four turnouts. The project was completed in August 2006, and all funds were expended.

Stillwater County
Improving Soil Productivity and Water Quality through Land Use Changes
RRG-02-1140
A $74,153 grant was authorized in 2001. A grant agreement was executed in July 2001. Grant funds were used to study groundwater and hydrogeologic conditions in the Lake Basin, near the communities of Molt and Rapelje. The project was completed in July 2005, and all funds were expended.

Teton County
Burton Bench Aquifer Study
RRG-02-1178
A $74,261 grant was authorized in 2001. A grant agreement was executed in November 2001. Funds were used to improve and/or protect the quality and quantity of surface and groundwater in the Muddy Creek and Teton River watersheds by utilizing data acquired in previous studies, to fully understand current conditions and changes, and develop a menu of water resource management planning options for the community. The project was completed in December 2004.

Worden-Ballantine Yellowstone County WSD
Water System Improvements
RRG-04-1223
A $100,000 grant was authorized in 2003 for design and construction of a water distribution system, new well, improvements to the collection box, and improvements to the pump station. The project was contracted in November 2003. The project was completed in spring 2006.

Active Grant Projects

Big Horn CD
Alluvial Aquifers of Northern Bighorn County
RRG-06-1272
A $100,000 grant was authorized in 2005 for the assessment of alluvial aquifers in northern Big Horn County. A grant agreement was executed in October 2005. To date, $21,878 has been disbursed. The goal of the study is to provide critical data for making land and water use decisions and to protect the primary source of water for the area. The MBMG was contracted to complete the work. The project is slated for completion in December 2007.

Broadview, Town of
Broadview Water Supply Study
RRG-06-1280
A $100,000 grant was authorized in 2005 for the town of Broadview to identify a new and viable water supply. A grant agreement was executed in May 2006. The MBMG is under contract with the community to complete the work. It will first identify areas that show potential for water-resource development and then it will test the feasibility of developing water supplies in the targeted areas. No grant funds have been expended on this project to date. The project should be completed by December 2007.

Buffalo Rapids Irrigation District
Canal Automation
RRG-06-1251
A $88,955 grant was authorized in 2005. A grant agreement was executed in September 2005. The purpose of the project is to design and construct a canal automation system which maintains water levels in the system. To date, $5,126 in grant funds has been spent. Project completion is expected by December 2006.

Buffalo Rapids Irrigation District
Improving Irrigation Efficiency and Water Quality
RRG-06-1253
A $100,000 grant was authorized in 2005. A grant agreement was executed in September 2005. The purpose of the project is to replace two lateral canals with PVC pipe and accompanying structures. To date, $15,438 in grant funds has been spent. Project completion is expected by December 2006.

Butte-Silver Bow
Big Hole River Transmission Line Replacement
RRG-06-1263
A $100,000 grant was authorized in 2005 for replacement of water transmission line between the Big Hole River and the Feeley Water Treatment Plant for the community of Butte's water supply. A grant agreement was executed in September 2005. This project was delayed because repair to the Basin Creek Dam was done last year and the reservoir drained. Without the water supply from the reservoir, the transmission line was the water supply for Butte last winter. It is expected that bids will be solicited later this fall for materials and the work will be done over the winter, when water demand is down.

Carter-Chouteau County WSD
Water System Improvements
RRG-06-1245
A $100,000 grant was authorized in 2005 for water system improvements for the community of Carter in Chouteau County. Specifically, the water and sewer district will design and construct water distribution system improvements, water source improvements, and purchase and install water meters and arsenic treatment point of use devices on each service connection. Currently main line replacements have been completed and plans and specs for the meters and arsenic treatment point of use devices have been submitted to DEQ for its approval. No RRGL funds have been expended on this project.

Cascade, Town of
Water System Improvements Project
RRG-06-1268
Cascade received a $100,000 grant in 2005 for construction of a water storage reservoir and connecting transmission main. The project bid in August 2006, and construction began in September with completion scheduled in 2007. No grant funds have been disbursed.

Charlo Sewer District
Wastewater Treatment and Collection
RRG-05-1236
A $100,000 grant was authorized in 2001. A grant agreement was executed in September 2004. To date, $95,000 has been disbursed. Funds were used to build a new lift station, construct a new aerated lagoon system with storage, construct a wetland, and construct an ultraviolet tertiary treatment facility. The collection main from town to the new lift station was also replaced. Delays caused by site acquisition and a change in discharge permit parameters required a change in the preliminary engineering review. Construction is complete except for minor cleanup activities and project closeout.

Choteau, City of
Water System Improvements Project
RRG-06-1246
Choteau received a $100,000 grant in 2005 for construction of water system improvements. Major improvements include a new pumping facility at Richem Spring and the replacement of approximately 60% of the distribution system. Bid early in 2006, the project is complete and in operation; $95,000 of grant funding has been disbursed.

Circle, Town of
Wastewater System Improvements Project
RRG-06-1262
Circle received a $100,000 grant in 2005 for wastewater system improvements, including a lift station, collection system replacement, and a reconstructed treatment lagoon. Due to funding limitations, the project is being constructed in two phases. RRGL funding is being used for lift station replacement and the replacement of 2,000 feet of collection system piping. Bid in July 2006, this portion of the project is being constructed and will be complete late in 2006. No grant funds have been disbursed.

Conrad, City of
Raw Water Intake and Pump Station Improvements
RRG-04-1218
A $100,000 grant was authorized in 2003 for design and construction of a new intake and intake backwash, a new pump station and wet well, an intake line and transmission line, and extension of an overhead powerline. The project was done in three phases. Phase 1 was design and construction of the Lake Frances intake, Phase 2 was design and construction of the transmission line, and Phase 3 was design and construction of the pump station. Construction is essentially complete. A final report will be submitted by December 2006. All funds have been expended.

Custer Area-Yellowstone County Water and Sewer District
Wastewater System Improvements Project
RRG-06-1264
The Custer Area-Yellowstone County WSD received a $100,000 grant in 2005 for wastewater system upgrades. Included are collection system replacement, a new lift station, and lagoon system reconstruction. Changes in federal design criteria for the lagoon have delayed the project; however, the lift station has been replaced and is in operation. The remainder of work is scheduled for 2007. No RRGL funding has been disbursed.

Dawson County
Yellowstone River Floodplain Management
RRG-04-1221
A $75,000 grant was authorized in 2003. A grant agreement was executed in April 2004. In FY 2005, $70,000 in grant funds was disbursed. Funds were used to update floodplain regulations in Dawson County by adopting a new Flood Insurance Study. A hydrological analysis, floodplain assessment, floodplain delineation, and new flood hazard maps covering 15 miles of the Yellowstone River in and around Glendive will be published and made available to the public. The project goals are to help county officials make informed floodplain management decisions about growth and development, and to protect and preserve the natural resources of the floodplain itself. LIDAR, bathymetry, aerial photography, and other data have been obtained. Project completion is planned for December 2007.

Dodson, Town of
Wastewater System Improvements Project
RRG-06-1266
In 2005, Dodson received a $100,000 grant for design and construction of a new wastewater treatment lagoon. The project bid during summer 2006, and work began in September with completion scheduled in 2007. No grant funds have been disbursed.

Ennis, Town of
Wastewater System Improvements Project
RRG-07-1284
Ennis received a $100,000 grant in 2005 for wastewater system improvements. Included are a new outfall structure in the Madison River, sludge removal and disposal from an abandoned lagoon cell, and an ultraviolet tertiary treatment facility. Tertiary treatment is required to comply with current surface water discharge criteria. The project bid in September 2006, and work began in October with completion scheduled for late 2006. No grant funds have been disbursed.

Fairfield, Town of
Wastewater System Improvements Project
RRG-06-1255
In 2005, Fairfield received a $100,000 grant for wastewater collection system improvements and a new lagoon. Funding limitations have delayed the lagoon work; however, the project has been phased and rehabilitation of a critical section of the collection system outfall line has been completed with RRGL funding. To date, $91,981.98 in Renewable Resource grant funds has been disbursed.

Flathead Basin Commission
Ashley Creek Headwaters Restoration
RRG-04-1219
A $99,700 grant agreement was authorized in 2003. A grant agreement was executed in March 2004. To date, $61,972.82 has been disbursed. Funds are being used for restoration of the Ashley Creek headwaters above Smith Lake. The Ashley Creek watershed area is about 20 miles west of Kalispell. Primarily “soft” stream restoration techniques will be used to achieve the restoration goals of improving water quality, reducing stream bank erosion and soil loss, and enhancing the westslope cutthroat trout fishery. Personnel turnover has hindered the project’s time line. It is anticipated the project will be complete in December 2006.

Fort Belknap Irrigation District
Sugar Factory Lateral Project Phase 1
RRG-05-1231
A $100,000 grant was authorized in 2003 for the improvements to the Sugar Factory Lateral. The project was contracted in July of 2004. The project is for design and construction of the installation of corrugated HDPE pipeline to enclose the Sugar Factory Lateral that borders Chinook and to conduct an assessment of seepage losses in canals throughout the district. The assessment has been completed. The construction of Phases 1 and 2 will take place simultaneously and were bid in spring 2006. The bids came in substantially over the engineer’s estimate. The district is evaluating either re-bidding the project or revising the scope of work. The project is slated for completion in fall 2006; however, a grant extension will probably be needed.

Fort Belknap Irrigation District
Sugar Factory Lateral Project, Phase 2
RRG-06-1249
A $100,000 grant was authorized in 2005 for Phase 2 of improvements to the Sugar Factory Lateral, including Phase 2 of design and construction of corrugated HDPE pipeline to enclose the Sugar Factory Lateral that borders Chinook; design and construction of inlet and discharge structures with bar grating; installation of two irrigation turnouts; and reclamation of the site. A grant agreement was executed in July 2005. The construction of Phases 1 and 2 will take place simultaneously and were bid in spring 2006. The bids came in substantially over the engineer's estimate. The district is evaluating either re-bidding the project or revising the scope of work. The project is slated for completion in fall 2006; however, a grant extension will probably be needed.

Fort Shaw Irrigation District
Water Quantity and Quality Improvement Project
RRG-04-1213
A $89,122 grant was authorized in 2003. A grant agreement was executed in October 2003. The purpose of the project is to improve facilities of the irrigation district to conserve water. Two contract extensions have been granted to provide additional time to complete the project. To date, $22,833 in grant funds has been spent. The project is expected to be completed by December 2007.

Gallatin Local Water Quality Protection District
A Dedicated Monitoring Well Network for the Gallatin Valley
RRG-04-1225
A $50,000 grant was authorized in 2003. A grant agreement was executed in May 2004. Funds are being used to drill and construct groundwater-monitoring wells. These new wells, in conjunction with existing wells monitored by MBMG, will create a dedicated monitoring network for the Gallatin Valley. Also, funds will be used to collect water quality samples and measure initial water levels to establish baseline data for the new well sites. As part of this grant project, a long-term monitoring plan for the well network will be developed in cooperation with MBMG. A grant extension was done in March 2006 because of the difficulty encountered in obtaining right-of-way and access to some of the monitoring wells. The project is slated to be completed in December of 2006.

Gardiner-Park County Water District
Water System Improvements Project
RRG-06-1243
In 2005, the Gardiner-Park County Water District received a $100,000 grant for construction of a new water treatment plant designed to remove arsenic from the system's groundwater supply. Bid early in 2006, the project is complete and in satisfactory operation. To date, $95,000 in Renewable Resource grant funding has been disbursed.

Hysham Irrigation District
Stream Bank Stabilization to Protect Irrigation Intake
RRG-04-1226
A $50,000 grant was authorized in 2003. A grant contract was executed in June 2004. The purpose of the project is to install structures to stabilize and protect the stream bank at the irrigation system intake. To date, $38,603 in grant funds has been spent. The project is expected to be completed by December 2006.

Judith Basin County
Geyser Water System Improvements
RRG-04-1195
A $100,000 grant was authorized in 2003 for installation of water meters on all service connections, design and construction of water distribution system improvements, installation of a new elevated steel water tank, and new wells. Grant funds have been used primarily for final engineering. The project has had two grant extensions and may need a third because the well drilled did not provide an adequate amount of water. Further geotechnical work is being performed on the well. The project is slated for completion in December 2006.

Jefferson Valley CD
Jefferson River Restoration
RRG-06-1250
A $95,468 grant was authorized in 2005 for restoration projects in the Jefferson River watershed. A grant agreement was executed in July 2005. The projects include: watershed coordination, an irrigation efficiency project with installation of soil moisture monitoring equipment; drought planning; the design and implementation of a bank stabilization project; and a sediment and stream morphology project as an ongoing study of stream channel and riparian health. The project is two-thirds complete and $67,500 has been expended. The project is slated for completion in December 2006.

Laurel, City of
Wastewater System Improvements Project
RRG-06-1261
In 2005, Laurel received a $100,000 Renewable Resource grant for replacement of wastewater system collection piping to alleviate a problem with shallow groundwater infiltrating the collection system and overloading the treatment facility. The project bid late in summer 2006 with construction scheduled for late 2006 and 2007. No RRGL grant funds have been disbursed.

Lewis and Clark CD
Florence Canal Rehabilitation Project
RRG-06-1275
A $100,000 grant was authorized in 2005 for rehabilitation of the Florence Canal. A grant agreement was executed in December 2005. The grant will be used to control the worst of the canal seepage and to replace or repair 12 culverts and a wooden flume. No work has been done on this project to date and no funds have been expended. The Nilan Canal Water Users will be doing the actual construction on the project and are waiting to begin until the end of the irrigation season this fall. The project is slated for completion in December 2006.

Liberty County CD
Chester Sprinkler Irrigation Project
RRG-06-1260
A $100,000 grant was authorized in 2005 for development of a PER for a sprinkler irrigation development project in Liberty County covering approximately 20,000-40,000 acres of farm land. To date, the project has expended $72,000. The project is slated for completion in December 2006.

Livingston, City of
Livingston Flood Damage Reduction Study
RRG-06-1265
A $100,000 grant was awarded in 2005 for a feasibility study that evaluates an array of alternatives to identify economic, ecosystem restoration, locally preferred plans, and present a recommended plan. The ACOE is conducting the study. A grant agreement was executed in September 2005. An interim report was released in June 2006. No funds have been expended on this project. It is slated for completion in December 2007.

Lower Yellowstone Irrigation Project
Canal Control Project
RRG-06-1278
A $100,000 grant was authorized in 2005. A grant agreement was executed in March 2006. The purpose of the project is to install automatic check structures in the main canal. To date, no grant funds have been disbursed. Project completion is expected by December 2008.

Malta Irrigation District
Replacement and Modification of Check Structures
RRG-04-1205
A $100,000 grant was authorized in 2003 for replacement of check structures within the district. The project was contracted in July 2004, and work on the new check structures will begin in fall after irrigation season. The project is approximately 50% complete. The district has requested a contract extension until December 2007.

Manhattan, Town of
Wastewater System Improvements
RRG-06-1273
A $100,000 grant was authorized in 2005. A grant agreement was executed in October 2006. The grant was awarded as Phase 2 of upgrades to Manhattan's wastewater system. This grant is for replacement of facultative lagoons providing wastewater treatment for Manhattan with a new mechanical wastewater treatment plant. No funds have been expended on this project to date. The project will require an extension since it was originally slated for completion in December 2006.

Mill Creek Irrigation District
Mill Lake Dam Rehabilitation Project
RRG-04-1204
In 2003, the district received a $100,000 grant authorization for construction of spillway and outlet works improvements to Mill Lake Dam, a high hazard dam in the Selway-Bitterroot Wilderness Area west of Hamilton. Preliminary and final engineering and a portion of the work were completed in 2005. The completed work includes slip lining of the outlet conduit and sealing the upstream face of the dam. Following a year of monitoring, work on the spillway is scheduled for fall 2007. To date, $95,000 of the grant funding has been disbursed.

Missoula, City of
Rattlesnake Neighborhood Sewer Collection System
RRG-04-1206
In 2003, Missoula received a $100,000 grant authorization for the design and construction of a wastewater collection system to complete centralized sewer service in the lower Rattlesnake area of Missoula. The project became the focus of citizen protests and legal action against the city, prompted by the alleged failure of the city to allow public participation during the planning and environmental review stages of the project. Although the project was delayed, it is being constructed in phases. No grant funds have been requested or disbursed.

Missoula County
Mullan Road Corridor Sewer Project, Phase 1
RRG-04-1197
In 2003, the county received a $100,000 grant authorization for design and construction of a wastewater collection system to complete centralized sewer service in the Mullan Road area west of Reserve Street in Missoula. Project construction was completed in 2005. To date, $95,000 has been disbursed, with close-out scheduled before the end of 2006.

Montana Department of Corrections
Rehabilitation of Prison Ranch Dam
RRG-04-1216
In 2003, the Montana Department of Corrections received an $80,000 grant authorization for the construction of a new spillway and stilling basin at Upper Taylor Dam, a high hazard earthfill dam on the prison ranch west of Deer Lodge. Work has been in progress since 2003, with labor and equipment provided by prison inmates and students from the Anaconda Job Corps (when available). The project is in progress intermittentlywith completion scheduled for fall 2007.

Montana Department of Natural Resources and Conservation
Deadman's Basin Supply Canal Rehabilitation Project
RRG-06-1254
In 2005, the DNRC SWPB received a $100,000 grant to hire a consultant to identify critical components of the Deadman's Basin Supply Canal and prepare an engineering report. The report was prepared and critical items were constructed in 2005. Included were structure replacement and improvements and canal lining to protect embankments from saturation failure and alleviate seepage. All grant funds have been disbursed.

Montana Department of Natural Resources and Conservation
Frenchman Dam Rehabilitation Study
RRG-06-1248
A $100,000 grant was authorized in 2005. A grant agreement was executed in June 2005. The grant funds will be spent on background data review; geotechnical investigation; flood hydrology study; analysis of firm annual yield; evaluation and development of various spillway designs; development of a farm budget model; and an inventory of cultural resources. The project is about 25% complete. No funds have been expended to date. The project is slated to be completed in December 2006.

Montana Department of Natural Resources and Conservation
Martinsdale North Dam Riprap Project
RRG-06-1244
In 2005, the DNRC SWPB received a $100,000 grant to armor the face of the Martinsdale North Dam and prevent erosion that has resulted in periodic clogging of the dam's outlet conduit. The project bid in September 2006, and construction is scheduled for fall of 2006 and winter of 2007. To date, $7,471.66 of grant funding has been disbursed.

Montana Department of Natural Resources and Conservation
Martinsdale Outlet Canal Drop Structure Replacement Project
RRG-06-1257
In 2005, the DNRC SWPB received a $100,000 grant for replacement of drop structures in the Martinsdale Outlet Canal. A portion of the work was completed in 2006, with subsequent work scheduled for 2007. To date, $24,893 of grant funding has been disbursed.

Montana State University
Four Corners Surface and Groundwater Study
RRG-06-1242
A $99,618 grant was awarded in 2005 to assess the interaction between groundwater and the Gallatin River in the Four Corners Area. Grant funds are being used to collect hydrologic data necessary to numerically model groundwater-surface water interaction in the Four Corners area and to establish monitoring to assess the response of groundwater to precipitation, irrigation, and river stage. To date, $68,500 has been expended. The project is slated for completion in December 2006.

Pablo-Lake County WSD
Wastewater System Improvements Project
RRG-05-1234
In 2003, the district received a $100,000 grant authorization for the design and construction engineering of an expansion to its existing wastewater treatment facility. The expansion project includes the construction of additional treated wastewater storage cells and expansion of the treated wastewater spray irrigation area. The project is currently being bid with beginning of construction scheduled for 2006; $78,000 has been disbursed.

Paradise Valley Irrigation District
Turnout Replacement Project
RRG-06-1279
A $100,000 grant was awarded in 2005 to replace irrigation turnouts in the Paradise Valley Irrigation District. The project is to purchase and replace 54 turnouts and associated pipe with standardized (pre-fabricated) turnouts and new pipe, dispose of the old pipe, and reclaim the disturbed lands around the turnouts. The turnouts and pipe have been purchased and installation is expected to be complete in fall 2006.

Park County-Cooke City Water District
Water System Improvements
RRG-04-1191
A $100,000 grant was authorized in 2003 to design and construct new wells, a water distribution system, a new buried steel water tank, and to install water meters on all connections. The project is stalled by two issues; right-of-way and water rights transfer. The district has hired a water rights attorney to assist it in establishing water rights. The right-of-way issue involves the new transmission main from the wells to the distribution system which must be constructed across some private property. The landowner is not willing to grant an easement, so the DOT was approached about obtaining an “Occupancy Permit” to install the water line in the highway right-of-way. The DOT is close to beginning the condemnation process to obtain the right-of-way. This will probably take approximately three months, so construction of the water project will be delayed until at least next spring. To date, $50,915 of grant funds has been expended on this contract. An extension will be needed for this project.

Power Teton County WSD
Water System Improvements
RRG-05-1232
A $100,000 grant was authorized by the Legislature in 2003 for the design and construction of a new water distribution system, a pre-sedimentation basin, and a new steel water tank. The project was contracted in August 2004. To date, $90,000 has been expended. The project has progressed slowly, but is slated for completion in December 2006.

Ramsay County WSD
Water System Improvements
RRG-04-1203
A $100,000 grant was authorized in 2003 for design and construction of a water distribution system, new hydrants and valves, new wells, and installation of water meters on all service connections and source supplies. The project was contracted in August 2003. Two debt elections were conducted and both failed by a slim margin. A third election was conducted in 2005 and the project is proceeding.

Ranch County WSD
Water System Improvements Project
RRG-06-1270
In 2005, Ranch County WSD received a $100,000 Renewable Resource grant for water system improvements including a new well, a 150,000-gallon water storage reservoir, a boost pump and chlorination facility, and distribution system replacement. Federal funding delays have slowed the project; however, the district proceeded with procurement of some materials in an effort to avoid cost escalation. No RRGL grant funds have been disbursed.

Richland County CD
Groundwater Study
RRG-04-1217
A $50,000 grant was authorized in 2003. A grant agreement was executed in December 2003. The purpose of the project is to study the potential for groundwater use in the Lower Yellowstone River Valley. Two contract extensions have been granted to allow more time to complete the project. To date, $28,390 in grant funds has been spent. Project completion is slated for December 2007.

Roosevelt County CD
Fort Peck Irrigation Water Quality and Quantity, Phase 1
RRG-06-1276
A $100,000 grant was authorized in 2005 for improving water quality and quantity on the Fort Peck Irrigation Project by cleaning and shaping drain ditches in the district. A grant agreement was executed in July 2006. An engineering firm was hired and survey and design were completed on the drain ditches. It is expected that the contract will go to bid in October 2006. Construction will probably begin in the spring. The project was expected to be completed in December, so a grant extension will be needed.

Ryegate, Town of
Water System Improvements
RRG-05-1237
A $100,000 grant was awarded in 2003 for design and construction of water source improvements, distribution system improvements, and installation of water meters. The project originally involved drilling two new wells for a water supply, but the wells did not produce the quantity or the quality of water needed. The project was phased and Phase 1 was the design and construction of an infiltration gallery. The DEQ recently determined the water source was not under the influence of surface water. Phase 2 will include improvements to the distribution system; $90,000 has been expended. The project is slated for completion in December 2006.

Savage Irrigation District
Rehabilitation Plan
RRG-06-1283
A $100,000 grant was authorized in 2005. A grant agreement was executed in July 2006. The purpose of the project is to investigate options and produce a design plan for rehabilitating features of the system. To date, no grant funds have been disbursed. Project completion is expected by December 2007.

Scobey, City of
Wastewater System Improvements
RRG-04-1209
A $100,000 grant was authorized in 2003. A grant agreement was executed in August 2003. The purpose of the project is to upgrade wastewater facilities of the city. One contract extension has been granted to provide more time to complete the project. To date, $90,000 in grant funds has been spent. Project completion is expected by December 2006.

Sheaver's Creek WSD
Water System Improvements Project
RRG-04-1212
In 2003, the district received a $100,000 grant authorization for design and construction of improvements to its drinking water system. Included were distribution line replacement, water meter installations at all service connections, two new wells, and construction of a 140,000-gallon water storage reservoir. Distribution system work and wells were completed in 2005. Easement acquisition has delayed construction of the storage reservoir, now scheduled for spring 2007. No grant funds have been disbursed.

Sheridan, Town of
Water System Improvements Project
RRG-06-1259
In 2005, Sheridan received a $100,000 grant for water distribution system improvements including the replacement of water mains, hydrants, and appurtenances. Delays in the procurement of a complete funding package have delayed the project, now scheduled to bid late in 2006 for 2007 construction. No grant funds have been disbursed.

Sidney Water Users Irrigation District
Increasing Irrigation Efficiency
RRG-05-1238
A $100,000 grant was authorized in 2003 to replace a portion of main canal with pipeline. A grant contract was executed in November 2004. To date, $90,000 in grant funds has been spent. Project completion is expected by December 2006.

Spring Meadows County Water District
Water System Improvements Project
RRG-06-1267
In 2005, Spring Meadows County Water District, northwest of Missoula, received a $100,000 grant for construction of water system improvements including a new storage reservoir, a replacement well, and minor distribution system improvements. The project bid in 2006, but all bids exceeded the budget for the project. The project is now being redesigned to include a steel storage reservoir instead of concrete in an effort to reduce construction costs. No grant funds have been disbursed.

St. Ignatius, Town of
Wastewater System Improvements Project
RRG-06-1256
In 2005, St. Ignatius received a $100,000 Renewable Resource grant to construct a new wastewater treatment lagoon and effluent disposal system. Delays in federal funding have slowed progress on the project; it is now scheduled to bid in late 2006 for 2007 construction. No grant funds have been disbursed.

Stanford, Town of
Water System Improvements
RRG-04-1194
A $100,000 grant was authorized in 2003 to design and construct two new wells and rehabilitate the wells currently in service. The project also includes design and construction of a new elevated steel tank and a water distribution system; $90,275 has been expended from this grant. The remaining $9,725 will be paid out on receipt of a final report, expected in spring 2007.

Stillwater County
Yellowstone River Floodplain Management
RRG-04-1222
A $75,000 grant was authorized in 2003. A grant agreement was executed in March 2004 and $70,000 has been disbursed. Funds were expended to update floodplain regulations in Stillwater County by adopting a Flood Insurance Study in the project area. A hydrological analysis, floodplain assessment, floodplain delineation, and flood hazard maps covering 15 miles of the Yellowstone River in and around Reed Point, Columbus, and Park City will be made. A public participation and data adoption process will take place, and the Flood Insurance Study and maps will be published and made available to the public. The project goal is to help county officials make informed floodplain management decisions about growth and development, and protect and preserve the natural resources of the floodplain itself. LIDAR, bathymetry, aerial photography, and other data have been obtained. Project completion is planned for December 2007.

Troy, City of
Water System Improvements Project
RRG-05-1235
In 2003, the city received a $100,000 grant authorization for construction of a new water well, a water storage reservoir, and distribution system improvements including water meters at each service connection. The project has been delayed because of difficulties in acquiring a suitable site for the well and reservoir. Easements and property have now been obtained, and construction is scheduled for 2007. No grant funds have been disbursed.

Upper/Lower River Road WSD, Phase 1
Water and Wastewater Systems Improvements Project
RRG-05-1233
In 2003, this newly formed district (eight subdivisions and five mobile home parks adjacent to Great Falls) received a $100,000 grant authorization for design and construction of a new water system and wastewater collection system. A debt election by the district passed in 2004, and work is substantially complete. To date, $95,000 has been disbursed.

Upper/Lower River Road WSD, Phase 2
Water and Wastewater Systems Improvements Project
RRG-06-1282
In 2005, the Upper/Lower River Road Water and Sewer District, on the southwest outskirts of Great Falls, received a $100,000 grant for the second phase of water and wastewater system improvements begun under Phase 1. This second phase will expand the area centrally sewered, and is scheduled for construction in 2007. No grant funds have been disbursed.

Valier, Town of
Wastewater System Improvements Project
RRG-06-1269
In 2005, Valier received a $100,000 grant for improvements to its wastewater collection system including manhole replacement and slip lining of existing deteriorated lines. The project bid in August 2006, and construction began in September. Completion is scheduled for late 2006. No grant funds have been disbursed.

Whitefish, City of
Water System Improvements Project
RRG-06-1274
Whitefish received a $100,000 grant for water distribution system improvements in 2005. The project consists of constructing a line under the Burlington Northern Railroad yard utilizing trenchless technology to provide system looping that will stabilize pressures and ensure a connection between the city's water treatment plant and the south portion of the community. The project is being designed and is scheduled for construction in 2007. No grant funds have been disbursed.

Wisdom-Beaverhead County Sewer District
Wastewater Treatment Facility Replacement Project
RRG-02-1168
In 2001, the district received a $100,000 grant to address floodplain issues and begin preliminary design of a new sewer lagoon for the community of Wisdom. Additional funding for the project was obtained, and construction is 90% complete as of October 1, 2006. To date, $91,322.19 of grant funds has been disbursed.

Woods Bay Homesites County WSD
Water System Improvements Project
RRG-07-1285
In 2005, the Woods Bay Homesites County WSD south of Bigfork received a $100,000 grant for water distribution system improvements including line replacement and installation of water meters. Easement acquisition has delayed the project, now scheduled for construction in 2007. No grant funds have been disbursed.

Yellowstone CD
Canyon Creek Restoration
RRG-06-1277
A $100,000 grant was authorized in 2005 for demonstration projects in stream restoration, watershed management, and weed control. The weed control portion of this project has been completed. Spraying was done for saltcedar and knapweed and education involving this demonstration project is ongoing. The stream restoration projects have been delayed because expected match funding was not realized. The CD is working closely with Zoo Montana to complete planning on the project. To date, $20,388 has been expended. Project completion is slated for December 2007.

Yellowstone Irrigation District
Flow Measurement Project
RRG-06-1271
A $100,000 grant was authorized in 2005. A grant agreement was executed in October 2005. The purpose of the project is to install water measurement flumes in the system and conduct a structural evaluation of the river diversion. To date, $6,087 in grant funds has been spent. Project completion is expected by December 2007.

Yellowstone County
Yellowstone River Floodplain Management
RRG-04-1223
A $75,000 grant was authorized in 2003. A grant agreement was executed in April 2004 and $70,000 has been disbursed. Funds were used to update comprehensive floodplain regulations in Yellowstone County by adopting a new Flood Insurance Study. A hydrological analysis, floodplain delineation, and new flood hazard maps will be made from west county line to Pompey's Pillar, 45 river miles. A public participation and data adoption process will take place and the Flood Insurance Study and maps will be published and made available to the public. The goal of this project is to help county officials make informed floodplain management decisions about growth and development, and protect and preserve the natural resources of the floodplain itself. LIDAR, bathymetry, aerial photography, and other data have been obtained. Project completion is planned for December 2007.

Authorized Projects Not Yet Executed

Beaverhead CD
Spring Creek Restoration Project, Phase 1
No Contract
A $100,000 grant was authorized in 2005 for restoration of the lower three miles of Spring Creek. The project includes: moving a ditch; replacement of a new headgate for the new ditch; construction of water gaps for livestock; construction of fencing around the affected area; and riprap treatment for hydraulic structures. The project has been delayed because match funding was not obtained as originally proposed.

Glasgow Irrigation District
Vandalia Dam Improvements, Phase 3
No Contract
A $100,000 grant was authorized in 2005 for Phase 3 of the Vandalia Dam rehabilitation, to fix struts and walkways in greatest need of repair. The project is delayed because the irrigation district does not have the match money it needs to complete the project.

Libby, City of
Cabinet Heights Wastewater System Improvements Project
No Contract
In 2005, Libby received a $100,000 grant for construction of a wastewater collection system in the Cabinet Heights subdivision, a recently annexed area that currently relies on on-site wastewater disposal. Acquisition of federal funding has delayed the project; however, funding has now been awarded and project development is proceeding. Construction is expected to occur in 2007.

Milk River Irrigation Project Joint Board of Control
Halls Coulee Siphon Repair Project
No Contract
A $100,000 grant was authorized in 2005 for repair of the Halls Coulee Siphon. Siphon repair will consist of replacing five leaking expansion joints, two on the left barrel and three on the right barrel, and four failed concrete saddle supports.

Missoula County
Grant Creek Restoration and Flood Mitigation
No Contract
This $100,000 grant moved into funding on the list as approved in 2005 after another project terminated. The project involves a collection of individual mitigation projects that will achieve environmental restoration and flood hazard reduction along the entire lower Grant Creek system. The project has been delayed until match funding from the FEMA is authorized.

Seeley Lake Sewer District
Centralized Wastewater Collection and Treatment System Phase 1
No Contract
In 2005, the Seeley Lake Sewer District received a $100,000 Renewable Resource grant for development and construction of Phase 1 of a multi-phased wastewater collection and treatment system for the community of Seeley Lake. The acquisition of federal grants has delayed progress; however, preliminary engineering of the project is proceeding, and alternatives are being evaluated to facilitate Phase 1 construction by 2008.

Terminated Authorized Projects

Gallatin County
Gallatin County Floodplain Delineation Project
No Contract
A $100,000 grant was authorized in 2005 for delineating floodplain boundaries and mapping 85 miles of stream. To complete the project, a $640,000 FEMA grant was needed. The FEMA grant was not awarded, the project could not move forward, and was cancelled by the county. The Renewable Resource grant authorization was terminated.

CHAPTER VIII

Renewable Resource Project Planning Grants

Application Administration and Project Review Procedures

In 2005, the Legislature authorized $300,000 to facilitate the development of renewable resource projects. The intent of the program is to assist public entities in completion of near-term project planning, including preliminary engineering reports and feasibility studies. Grants are provided to fund planning for renewable resource projects that conserve, manage, develop, or preserve Montana's renewable resources.

Applications for planning grants are accepted by DNRC from public entities on an "open-cycle" basis. No application fee is required. Grant awards are made on a first-come, first-served basis for qualified studies until funding is depleted. In the 2005-2006 biennium, each grant required an equal cash match by the applicant, and grants were limited to $10,000 per project.

Project Solicitation

No formal solicitation for applications is conducted. Engineering firms and other consultants involved with eligible studies have been informed that planning grant funding exists. During presentations to solicit applications for the regular public grant and loan program, the availability of planning grants is discussed.

To request funds, applicants are required to submit an application that describes the project, identifies the sources and uses of funding, and discusses the implementation schedule for the study.

From July 1, 2005, through September 30, 2006, DNRC awarded project planning grants to public entities for 23 public facilities (water, wastewater, or solid waste) and 11 other renewable resource projects.

Application Review

As with funding for other renewable resource projects, planning grant funds must be used to plan projects that enhance renewable resources through conservation, development, management, or preservation; for assessing feasibility or technical planning; or for similar purposes approved by the Legislature. All applications submitted are evaluated for completeness and compliance with the intended purposes of the program.

Requests for planning grant funds are reviewed by DNRC staff. The scope of the project being considered is evaluated to determine its eligibility for funding under the RRGL program. The proposed budget is analyzed and proposed costs are evaluated for feasibility.

Project Management

DNRC staff work closely with project sponsors and consultants during the planning stages of projects. For public facility studies, the applicant must contract with a registered professional engineer to prepare a Preliminary Engineering Report that satisfies the requirements of the Uniform Application Supplement for Montana Public Facility Projects. This application is accepted by all of the state agencies funding water, wastewater, and solid waste projects in Montana, and also by the Montana Rural Development Rural Utilities Service, formerly known as Farmers Home Administration. For all projects, draft submittals of planning documents prepared under this program are submitted to DNRC or other agency professionals for review before interim payments; a final report is required for review and approval before final payment.

Authorized Projects

In 2005, the Legislature authorized $300,000 for planning grants. Between July 1, 2005, and September 30, 2006, funded project planning grant applications included the following:

FIGURE 9 Project Planning Grants Approved During the 2006 Biennium

PROJECT SPONSOR	PROJECT TYPE	AMOUNT
Public Facility Projects		
Bynum	Water System Improvements	$ 10,000
Big Sandy	Wastewater System Improvements	10,000
Billings Heights Water District	Water System Improvements	10,000
Columbia Falls	Wastewater System Improvements	10,000
Custer County	Wastewater System Improvements	8,000
Eureka	Wastewater System Improvements	10,000
Glasgow	Water System Improvements	10,000
Granite County	Solid Waste	3,000
Harlem	Water System Improvements	6,000
Hill County Water District	Water System Improvements	10,000
Lewistown	Wastewater System Improvements	5,660
Livingston	Solid Waste	10,000
Lockwood Water and Sewer District	Water System Improvements	10,000
Miles City	Wastewater System Improvements	5,000
Missoula County, Sunny Meadows Water and Sewer District	Water System Improvements	10,000
Neihart	Water System Improvements	10,000
Panoramic Mountain River Heights Water District	Water System Improvements	6,670
Richland County Valley View	Water System Improvements	9,000
Shelby	Wastewater System Improvements	10,000
South Chester Water District	Water System Improvements	3,500
Twin Bridges	Water and Wastewater System Improvements	10,000
Wilderness Plateau Water and Sewer District	Water System Improvements	6,000
Winifred	Wastewater System Improvements	6,670
Non-Public Facility Projects		
Beaverhead County	Blacktail Deer Creek Floodplain	10,000
Beaverhead CD	Irrigation Infrastructure Improvements - Big Hole Ditch	10,000
East Bench Irrigation District	Irrigation Infrastructure Improvements - East Bench Canal	10,000
Eureka	Watershed Restoration - Tobacco River Drainage	10,000
Glacier CD	Stream Bank Stabilization - Cut Bank Creek	10,000
Liberty CD	Stream Bank Stabilization - Marias River	10,000
Malta Irrigation District	Irrigation Infrastructure Improvements - North Dodson Canal	7,000
MT DNRC Water Resources Division	Irrigation Infrastructure Improvements - Smith Creek Diversion Canal	10,000
Petroleum CD	Irrigation Infrastructure Improvements - Petrolia Ditch	10,000
Roosevelt County CD	Irrigation Infrastructure Improvements - 58 Main Check Structure	10,000
Sweet Grass CD	Irrigation Infrastructure Improvements - West Boulder River	10,000
	TOTAL	**$ 296,500**

Governor's Executive Budget
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Renewable Resource Grant and Loan Program

2007

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