

Program Title: Lake Redwood Reclamation and Enhancement Project

**Request for Funding Form
Lessard-Sams Outdoor Heritage Council
Fiscal Year 2011**

Program Title: Lake Redwood Reclamation and Rehabilitation Project

Date: October 26, 2009

Requesting Organization: Redwood Cottonwood Rivers Control Area and the City of Redwood Falls

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	Council Funding Request	Out-Year Projections of Needs		
Funds Requested (\$000s)	FY 2011	FY 2012	FY 2013	FY 2014
Outdoor Heritage Fund	\$4,612.50			

A. Summary The Lake Redwood Reclamation and Enhancement Project will restore one of the two lakes in Redwood County (both man made) that will result in these two objectives;

1) The Lake Redwood Reclamation and Enhancement Project will be to restore and enhance the lake by removing up to 655,000 cubic yards of sediment which will be land applied in an approved and preselected dewatering basin. It will take the current depth of the lake from an average of 2.8 feet to the 20' constructed depth in 1902.

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2) The Lake Redwood Reclamation and Enhancement Project will reverse 107 years of sediment deposition and reverse the 1979 DNR Ecological Services report that “Much of the lake basin has filled in with silt and the Reservoir has degraded and is no longer capable of sustaining a diverse gamefish community.” - Since that report the DNR Fisheries has ceased stocking fish in the lake.

B. Background Information

1. What is the problem or opportunity being addressed? The Redwood-Cottonwood Rivers Control Area (RCRCA), a multi-county joint powers organization in conjunction with the City of Redwood Falls, proposes to reclaim Lake Redwood by dredging accumulated sediments. Lake Redwood is a man-made impoundment located at the downstream end of 629-square mile drainage area with predominantly agriculture land uses. Lake Redwood was originally formed in 1902 when the Redwood River was impounded by A.C. Burmiester who was quoted in the May 9, 1900 edition of the Redwood Gazette: *“The idea is to dam the river at a point 100 feet south of the bridge... It is to be built high enough to flood all of the land that is to be purchased, and hence will form a beautiful lake, which is to be stocked with fish, and which can be used for boating, bathing and other purposes...”*. The current dam, which is over thirty feet high, was refurbished after the flood of record in 1957. Abundant recreational opportunities were provided by this reservoir and local citizens actively used the lake. The dam also provides a source of electricity to the city of Redwood Falls. The current hydropower facility has a capacity of 0.6 megawatts which is used to provide summertime peak demand reduction. Currently the City of Redwood Falls has obtained preliminary cost estimates to upgrade the hydroelectric turbines to increase the green energy the dam provides with estimates coming in at \$1.5 million.

RCRCA was established in 1983 to reduce the amount of sediment from reaching Lake Redwood by implementing conservation practices up stream. RCRCA is made up of an eight county joint powers organization that includes the County Boards and County Soil and Water Conservation Districts. At the time, Lake Redwood’s sedimentation rate was about 1.5 feet a year being deposited and not conducive or cost effective for dredging. Since that time numerous conservation projects have been implemented and those projects have reduced the sedimentation rate to .13 feet per year. With conservation practices actively being adopted in the watershed this can go even lower resulting in a project with well over a 70 year life expectancy. Recent sediment coring data presented by the MN Geological Survey have shown results that more than 70 percent of the current loading is coming from in stream streambank erosion caused by increased hydraulic loading. Increased wetland restoration efforts that are underway with BWSR, SWCDs and funding from the L-SOHC will further reduce the excessive hydraulic loading and subsequently reduce the effects of stream bank and bed-load erosion further extending the life of this project.

The MNDNR conducted a resurvey on the Redwood Reservoir in 2006 to monitor the physical, chemical and biological characteristics of the basin. The deepest water found

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was 7.3 feet, but most of the reservoir was 4.5 feet or less with a 2.8 foot average. Several shallow areas made boating difficult during the early August time period. The reservoir's watershed was dominated by row crop agriculture and the most abundant shallow water substrate was silt. Submergent vegetation was extremely rare and the water was highly turbid. The Redwood reservoir has suffered from partial winterkills in the past but none have been documented in recent years.

A variety of species were available to anglers fishing the Redwood Reservoir in 2006. High numbers of channel catfish were trap netted. Channel catfish were 7.3-23.5 inches long averaging 13.8 inches. The 2006 catch rate for channel catfish was 14 times greater than any previous catch rate. Low numbers of northern pike, walleye, and black crappie were trap netted in 2006. Pike were 21.9-25.0 inches long averaging 23.4 inches. Walleye were large, ranging in length from 23.3-24.3 inches. Black crappie were also keeper sized, ranging in length from 8.2-11.5 inches. Carp, golden red horse, silver red horse, bigmouth buffalo and white sucker should also provide plenty of action for reservoir anglers.

Along with restoring the fishery in Lake Redwood, this project has an additional water quality benefit. It is a proven fact that the residence time of the lake brings the fecal coliform level downstream under the 200 colony forming units per 100 ml threshold. This project by reclaiming the reservoir capacity will increase residence time and add further UV and deposition treatment prior to discharging to the Minnesota River. Currently, a Turbidity TMDL is underway for the Redwood River. Again, the Lake will have a 70 year plus life expectancy. By removing 650,000 cubic yards of sediment, the reservoir will eventually trap that volume again and keep the stored sediment from degrading the MN River basin and complement the efforts in Lake Pepin. The sediment delivery to the lake has gone from 1.5 feet per year to .13 feet reflecting the enormous amount of conservation projects that have gone in upstream. With added attention to non-point runoff and streambank stabilization as reflected in the sediment coring data by Carrie Jennings of the MN Geological Survey, we will be able to extend the life well beyond 70 years.

The current status of the project is pending securing additional project dollars. The project has 1.4 million in Bonding that expires on December 31, 2010 with the ability of an extension if other funding sources are committed. This project has been designed, completed an EAW and currently has all of the permits required to start this fall. The project went out for bids and they came in at 5.2 million. The project could commence as early as October of 2010 for sediment basin construction with the actual hydraulic dredging to begin spring of 2011.

The primary work area of the Lake Redwood Reclamation and Enhancement Project will be in the Redwood Falls City Limits and the dewatering pond will be in Delhi Township of Redwood County.

This Project is directly consistent with the uses of the Outdoor Heritage Fund, as specified in Article XI of the Minnesota Constitution and Minnesota Statute 97A.056: to

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restore, protect, and enhance wetlands, prairies, forests, and habitat for fish, game, and wildlife. Furthermore, it will produce multiple conservation benefits across a large targeted and planned geographic area.

2. What action will be taken? The Lake Redwood Reclamation Project is engineered and is construction ready. A full EAW has been performed and all of the permits necessary for construction have been obtained. With an L-SOHC funding award, it will be used in conjunction with the remaining \$1.4 million in Bonding dollars (\$200,000.00 was used to complete the EAW and provide engineering and design) to go out and rebid the project. Also, a concurrent effort will be made with Senator Frederickson to obtain an extension for the bonding dollars that sunset December 31, 2010 and governed by the Minnesota Public Facilities Authority (PFA). A lease agreement for the dewatering pond has been developed and the current Landowner is in support of this project. A fee title acquisition may be negotiated to leave the dewatering basin intact for future maintenance dredging determined by a scheduled 35 year maintenance inspection.

3. Who will take action and when? Immediately for the Legislative Session starting February 4, 2010, RCRCA - the project manager and City of Redwood Falls will work to extend the bonding dollars with Sen. Fredrickson's office. RCRCA- Project manager, will then immediately rebid the project assisted by Houston Engineering and re-engage the permitting agencies-July 1, 2010. The Lease Agreement and or fee title acquisition will be completed by Sept. 1, 2010. RCRCA/City of Redwood Falls will issue the notice to proceed for the sediment dewatering pond construction can be executed and construction can start-October 1, 2010-FY 2011. RCRCA/City of Redwood Falls will issue the notice to proceed for the lake reclamation to begin at ice out in April 2011 and last through the summer. Approximately 65 working days will be needed at minimum depending on the size of the dredge.

4. How will you coordinate this program with the other Constitutional Funding?

Currently, this is the only Constitutional funding source being sought. The Lake Redwood Reclamation Project does have a strong "Green" and "Water Quality" components that may make it eligible for multi-source funding. Cooperative funding would be welcomed and the project goals and objectives would not change.

5. What specific habitat changes will occur if this item is funded? Be specific about and list multiple benefits if they exist.

The specific habitat changes from the reclamation of Lake Redwood will be increasing the depth of the lake from a 2.8 foot average to a maximum depth of 20 feet. By DNR permit, sediment cannot be removed within 25 feet of the shore to maintain any existing submergent and emergent vegetation and also provide shallow structure where this vegetation may colonize. The sediment removal will follow the contiguous bottom contours providing additional topographical structure. By increasing the depth of the reservoir it will eliminate fish winter kills, increasing species diversity.

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6. Will your Outdoor Heritage Fund dollar request complete the planned accomplishments?

YES **NO**
If not, how will you finance completion?

7. How will you pay for the maintenance of the accomplishments?

The continued use of established conservation programs above Lake Redwood will help to maintain the accomplishments well beyond the 70 year life expectancy of the lake. This is a conservative life expectancy. With current siltation rate of .13 feet per year, it would take 140 years to reach the level we are today. It is anticipated the current rate of adoption of conservation initiatives in the watershed above the lake which will push the action stage of 50% siltation further into the future. Periodic depth contours with sonar will be made to determine when action will be needed. Installed conservation practices in the watershed above the lake continue to be most cost effective approach for maintaining the project. These practices are: stream bank restoration, wetland restoration, buffer/filter strip initiatives and marginal working land retirement. These are currently the goals and focus of conservation programs RCRC and the Soil and Water Conservation Districts are implementing with conservation cost share programs which have proven effectiveness by reducing the sedimentation rate from 1.5 feet per year to the current .13 feet per year.

8. How does this action directly restore, enhance, or protect prairies, wetlands, forests or habitat for fish, game, and wildlife?

This action will restore the 65 acre reservoir back to its original depth contours which will enhance fish habitat, survivability and diversity. The current approved design does have variable depths built in to the dredging plan to provide diverse habitat for fish. As indicated in the background information the reservoir has degraded to a point where it can no longer support diverse gamefish populations. But with the recent 2006 population study, the lake still has the potential to provide a remarkable fishery once restored. The 2006 study shows good channel catfish populations and remarkably a good size structure of walleye and crappie. This project will undoubtedly increase those numbers and add statistically significant populations of other species.

9. If you are restoring or enhancing property, is the activity on permanently protected land?

YES **NO**
If yes briefly describe the kind of protection. Lake Redwood is under ownership of the City of Redwood Falls and has a DNR Lake designation.

10. How will you ensure transparency and provide information about your work and use of Outdoor Heritage Fund dollars.

Transparency, shared information, and uses of OHF dollars will be accomplished by following the engineering plans and specs already developed for the project and established LSOHC Guidelines and reporting requirements. Press releases and web-based products will be used to provide public and/or stakeholder notification of project goals, objectives, and, accomplishments. RCRC and the City of Redwood Falls will

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continue to engage our partners, local units of governments, government agencies, and regional state and federal Legislators of project developments and accomplishments.

11. When do you expect to see these habitat changes? June 30, 2012.

12. Why will this strategy work? RCRCA Joint Powers Organization formed by statute in 1983 undertook the goal of reducing the sedimentation rates to Lake Redwood in order to make this project feasible. The RCRCA Joint Powers organization consists of eight Counties and the associated eight Soil and Water Conservation Districts. Six of those Counties: Lincoln, Lyon, Murray, Pipestone, Redwood and Yellow Medicine have been actively engaged through the Joint Powers Organization in establishing targeted conservation practices in the Redwood River Watershed. Of course this has all been made possible by the tremendous support and adoption of these conservation practices by local landowners. These efforts will continue concurrently with the project and beyond to increase its sustainability. This project also has the benefit of being shovel ready with the engineering, EAW and permits have already been completed.

13. Who might make decisions that assist or work against achieving the expected impact program?

The RCRCA Board of Directors, Redwood Falls City Council and Redwood County Board of Commissioners have consistently pledged their support of the project and hope to see it come to fruition. The State Legislature has pledged their support by dedicating bonding dollars to implement the project. The Green Corridor project recently held a forum of Redwood Area business men and women and asked, "What is the most important accomplishment they would like to see?" and the overwhelming response was to restore Lake Redwood. With that said, decision or policy makers in local, regional, or state government and/or government agencies could always have **positive or negative** effects on the project but with proper and timely engagement with these government agency decision or policy makers – the negative effects can be mitigated and the positive effects can be enhanced.

14. If this is acquisition of land, has the local government formally approved the acquisition?

_____ **YES**

_____ **X** _____ **NO**

No acquisition is needed to carry out the project. A lease agreement has been developed with the landowner for deposition of the dredge material that will have to be finalized according to funding timelines. Acquisition of the dewatering site is a possible outcome. Currently the landowner is in support and has stated his desire to continue with the lease agreement.

15. If this is fee simple acquisition of land, is the land free of any other permanent protection such as a conservation easement?

21. Does the request restore and/or enhance habitat on existing state-owned Wildlife or Aquatic Management Areas or Scientific and Natural Areas?

 YES **X** NO

If Yes, list the names of the AMAs, WMAs and/or SNAs and the acres to be restored and/or enhanced.

22. Is this request based on assessment through a science based strategic planning and evaluation model similar to the United States Fish and Wildlife Service's Strategic Habitat Conservation model?

 X YES **NO**

If yes explain the model briefly. The USFWS – SHC model outlines several key elements; Planning, Implementation, and Evaluation which RCRCA has built into the project. This project has been in the planning and development stages since 1983 and has all of the engineering completed along with public and local government support. As stated earlier, the project is shovel ready and has been in a holding pattern since bids were opened April of 2007 where high fuel costs pushed the bid price to \$5.2 million over the projected cost estimation of surrounding projects that were completed in 2002. RCRCA has held strategic planning sessions led by the University of Minnesota Extension where the Lake Redwood Reclamation Project was the highest priority set for the organization. RCRCA and the City of Redwood Falls will continue to engage the public and local/state government through the duration of this project and continues to do so annually.

23. Explain the scientific foundation for your project, and the benefits it will produce.

RCRCA has been monitoring the Redwood River through the MNPCA Clean Water Partnership Program since 1989. Of which, 20 years of water quality data has been collected and pollutant loading has been calculated using the US Army Corp. of Engineers FLUX modeling program. Lake sediment depth has been manually measured in 1991, 2002 and sediment coring with radioactive isotope dating has been performed in 2007 by the MN Geological Survey. All water quality data has been submitted and is stored on the EPA STORET database for public use and has been certified. The data has been used to calculate loading characteristics coming in and going out of Lake Redwood and is the foundation for trend analysis for all statistics that have been quoted. RCRCA and its SWCD JPO members have implemented as of 2007: 298 BMPs under 173 contracts that reduce soil loss by 25 tons per year resulting in 18 tons per year reduction in sedimentation and 20 thousand pounds per year of phosphorus. RCRCA partners have implemented 7,336.36 acres of CREP/RIM and NRCS have treated 4,132 acres in the Redwood River watershed resulting in 16.5 tons of sediment reduction annually and 23,000 pounds of phosphorus from annually reaching the Redwood River and subsequently Lake Redwood. These activities are what have lead to the reduction in sedimentation rates from 1.5 feet per year to the current .13 feet annually. On-going conservation efforts will undoubtedly reduce the rate even further. All modeling, sediment

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coring and conservation implementation results are available upon request in MS Word, Excel and PowerPoint formats. Engineering for the project is also available electronically.

24. How do you set priorities? (Be sure to list the criteria you use and the weight you give each one.)

RCRCA has set the priority of reducing the sedimentation load to Lake Redwood to make this project feasible since 1983. This goal was the foundation that caused the forming of the Redwood-Cottonwood Rivers Control Area JPO by statute so the six Counties and Soil and Water Conservation Districts could work cohesively to prioritize and target projects in the Redwood River watershed that would accomplish the goal on a watershed basis and make this project feasible. Through numerous public meetings, annual presentations and strategic planning sessions this has remained the goal of RCRCA to make this project feasible and 26 years later the goal is a reality and is being presented to L-SOHC for funding consideration.

C. Relationship to the *Minnesota Conservation and Preservation Plan* and Other Published Resource Management Plans: The Lake Redwood Reclamation and Enhancement Project will ensure program activities conform to the various state conservation and resources plan objectives and outcomes:

Division of Fish and Wildlife Long Range Plan for Fisheries Management Covering Fiscal Years 2004-2010

Division of Fish and Wildlife Mission Statement for Fisheries Management:

To conserve and manage Minnesota's aquatic resources and associated fish communities for their intrinsic values and long-term ecological, economic, and recreational benefits to the people of Minnesota.

Broad Goals:

1. To make recreational fishing as good as it can be in the state of Minnesota for the present and future.
2. To conserve, maintain, enhance, or rehabilitate Minnesota's aquatic resources to serve environmental, social, and commercial purposes.
3. To foster an ethic of natural resource stewardship among all Minnesotans.

Continued watershed conservation implementation will also address the following plans:

Minnesota Statewide Conservation and Preservation Plan identifies habitat loss and degradation as the number one driver of change for wildlife in Minnesota and further states that the prairie regions have experienced the greatest amount of habitat loss of any region.

Minnesota's Comprehensive Wildlife Conservation Strategy for species in greatest conservation need has identified significant loss and degradation of habitat as the number one management challenge and one of the primary strategies is to provide protection through selective acquisition of key habitats in the prairie regions.

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D. Budget

Budget Item	Fiscal Year 11	Fiscal Year 12	Fiscal Year 13
Personnel	\$40,000	\$40,000	
Contracts	\$4,500,000		
Equipment/Tools/Supplies	\$10,000.00 Dewatering Pond Discharge -water quality sampling		
Fee Acquisition			
Easement Acquisition	N/A		
Easement Stewardship	N/A		
Professional Services	\$20,000 City of Redwood/Fiscal Host		
Travel	\$2,500		
Additional Budget Items			
Restoration			
TOTAL	\$4,572,500	\$40,000	

E. Personnel Details *In the space below list the names, titles and anticipated program funds to be paid by this recommendation. If you will need to fill a position just list the title and amount.*

Title	Name	Amount.
RCRCA Exec. Director	Douglas Goodrich, RCRCA	\$40,000
RCRCA, Water Quality Tech.	Shawn Wohnoutka	\$40,000
City of Redwood Finance Director	Missi Meyers	\$20,000

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F. All Leverage. In the table below list the sources and amounts of leverage you anticipate by fiscal year you anticipate receiving it. Include state and non-state leverage.

Source of Leverage	Fiscal Year 11	Fiscal Year 12	Fiscal Year 13
Remaining State Bonding Dollars- PFA to RCRCA	\$1,400,000.00		
TOTAL	\$1,400,000.00		

G. Outcomes:

- 1) *In the first table below, quantify the outcomes you plan to achieve with the recommended funds.*
- 2) *In the second table show list the sections where outcomes will occur.*
- 3) *In the third table, allocate your recommended funds to each cell with outcomes listed in table 1.*
- 4) *In the fourth table show the leverage to be applied to each cell with outcomes listed in table 1. and*

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5) *If you have any outcomes listed in the “protect” row in table1, account for them according to the type of acquisition and PILT status in table 5*

Table 1 Accomplish- ments	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Restore				Restore 65 acre Lake Redwood to its original contours of up-to 20 feet.
Protect				
Enhance				

Table 2 Sections Impacted and Impact Quantifier	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Restore				65 acres of Lake
Protect				
Enhance				

Table 3 Recommend Fund Allocation	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Restore				\$4,612,500.00
Protect				
Enhance				

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Table 4 Leverage \$	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Restore				<i>\$1,400,000.00 Left in Construction Bonding Dollars- \$200,000 used for Engineering</i>
Protect				
Enhance				

Table 5 Acquisition Data	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Acquired in Fee with State PILT Liability				
Acquired in Fee without State PILT Liability				
Permanent Easement				

H. Accomplishment Time Table Using the headings below, include a clear statement of how much of what is being accomplished and when. Attach a map showing where accomplishments are anticipated. Accomplishments should clearly restore, enhance or protect forests, wetlands, prairies and habitat for fish, game and wildlife.

Milestone	Date	Measure
Seek Bonding extension	Feb.2010	Extension Granted
Rebid the project.	July 1, 2010	40 Day bid award
Re-engage permitting agencies	July 1, 2010	Reset project time frame
Finalize Dewatering site lease agreement	Sept. 2010	Signed lease agreement
Issue notice to proceed to successful bidder	Sept. 2010	Issuance of notice
Construct Dewatering pond	Oct. 2010	In place for Ice out start
Mobilize hydraulic dredge and piping	Fall 2010/Spring 2011	– April start
Complete reclamation	Spring to Fall 2011	By Current Design
Discharge monitoring of dewatering pond	Spring to Fall 2011	Concurrent
Demobilize hydraulic dredge and piping/clean-up	Fall 2011	Equipment removed
Begin 6 year Dam inspections and site maintenance	Spring 2011 to July 2017	Required
Deconstruction of Dewatering Pond/site reclamation	July 1, 2017	Cover crop planted

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I. Relationship to Your Current Budget

City of Redwood Current Fiscal Year 2010 Budget: \$50,756,000

Source of Funding	Amount	Percentage to Budget
LSOHC FY2010	\$4,612,500	9%

Un-spent/un-programmed State Dollars

None

J. How Will the Habitat Improvements Be Sustained? See item 7.

K. Attach a list of your projects listing their county location and edit the map of Minnesota on the next page to show each project as a symbol.

<u>Proposed Project Name</u>	<u>County</u>	<u>Acres</u>
Lake Redwood Reclamation	Redwood	65

Double left click to bring up the map editor. Symbols should be on the left side of the pop-up banner at the top of your screen or at the bottom left depending on your software.

If you can't bring up the interactive map editor follow these instructions:

1. Make a paper copy of the map,
2. By hand place symbols on the map corresponding to the location of the projects in your proposal,
3. Scan the marked map to a pdf, and
4. Insert the marked pdf map as the last page in your submission.

