Appendix A:

North Fork Crow River Watershed District

List of Accomplishments
&
Projects/Costs

The following "List of Accomplishments" and "List of Projects/Costs" is summarized in the Executive Summary and described fully here in Appendix A:

H. Watershed District List of Accomplishments

Since its inception in 1985, the North Fork Crow River Watershed District has completed a number of water quality and quantity achievements. The following list outlines many of the District's most successful accomplishments:

Control and Alleviation of Flood Waters

A. The Watershed District has installed several wetland outlet control structures as part of drainage ditch repairs and other projects which hold back water in high flow periods.

B. The outlet of Raymond Lake has a rock structure in the outlet.

C. Bankers Slough has a sheet pile structure to regulate flow and control water height and was replaced in 2009.

D. A structure was installed in the sub-main of CD-37 to create water storage.

E. Grove Lake Dam was replaced in 2001 to help with the spring flooding and control lake levels.

F. A structure was placed in the outlet to Mud Lake the headwaters of JD-1 to store water and maintain lake levels this can have planks removed if needed.

G. Some culverts have been down sized to control runoff during high water such as the field crossing culvert on JD-2 and CD-4.

H. Several structures have been installed by the DNR and FFW to hold back water.

I. JD-1 has had several control structures incorporated into the branch ditches to control wetland discharge and flow.

J. There have been many thousands of feet of seepage tile installed throughout the district to help with drying soils which also gives the soils more storage capacity when there are large precipitation events.

K. There have been several structures installed by Rice Lake and Lake Koronis to control water flow during large precipitation events.

L. In addition, most projects are required to control or limit runoff during storm events.

Improvement of Stream for Drainage, Navigation and other Public Purposes

A. There have been several river cleanup days held in the Watershed District which have included the Boy Scouts, Trail Guards and others.

B. Removed large trees that have fallen into the river and were blocking the channel.

C. Repaired several miles of drainage ditch are also the NFCR.

D. Monitor flows on the streams to watch for changes.

E. Removed beaver and their dams when needed to allow for proper flow.

F. Permitted several road improvement and bridges making sure the flow capacity is maintained.

Reclamation and Filling of Wet and Overflowed Lands

A. Worked with BWSR and the NRCS to restore wetlands on JD-1, CD-32, restored drained wetlands by Grove Lake.

B. Worked with the DNR and FFW to restore small wetlands on private landowner's properties.

Regulating Flow of Streams and Conserving Waters

A. Installed several structures in the outlet of wetlands to hold water and regulate the flow to the main river.

B. Replace the Grove Lake Outlet Dam

Diverting and Changing Watercourses

A. Installed several structures to collect water and discharge at a controlled rate.

B. Moved parts of drainage ditches to avoid drainage of wetlands and control flows

C. Moved parts of drainage systems to allow for updated farming practices.

Providing and Conserving Water Supplies for Domestic, Industrial, Recreational, Agricultural and other Public Uses

A. Helped in the promotion of conservation type tillage which helps water infiltration in co-operation with the NRCS and SWCD's.

B. Installed structures in outlets to wetland to hold water;

C. Work with the City of Paynesville on their Wellhead Protection program.

Providing for Sanitation and Public Health and Regulating the Use of Streams, Ditches, and Watercourses for the Purpose of Disposing of Waste

A. Conducted septic inspections around Rice and Koronis lakes in 1995.

B. Presently working on a project to inspect all the septic systems in the Watershed District.

C. Worked with the MPCA to administer the SRF Loan Program throughout the Watershed District which provided low interest loans to private landowners to upgrade their ITS and to farmers to upgrade their feedlot waste management systems.

D. All public waste water treatment systems have been improved and meet discharge standards.

Repairing, Improving, relocation, modifying, consolidating and amending in whole or in part, drainage systems within the Watershed District

A. All of the ditches except JD-11 between Kandiyohi and Meeker Counties have been turned over to the Watershed district for administration.

B. JD-1, CD-5, and CD-21 had redeterminations of benefits done by the Watershed District.

C. JD-1, JD-2, CD-5, CD-7, CD-8, CD-21, CD-37, CD-38, CD-36, CD-4 Meeker, CD-29, CD-32, CD-46 have all had repairs done on them by the Watershed District after they were turned over.

D. CD-4, CD-5, CD-7, CD-8, CD-21, JD-1, JD-2 CD-32, CD-37 and CD-38 have all had relocations or modifications done on problem areas of the ditches since they have been under the administration of the Watershed District.

E. Beaver and beaver dams have been removed from all systems except JD-2, CD-40, CD-43 and CD-3

F. A drainage policy manual has been developed by the Watershed District.

G. Some culverts have been downsized to help prevent erosion down stream.

H. All repairs require that the spoils be leveled, sloped away from the system and drop pipes installed so no water enters the system directly over the sides.

Imposition of Preventative and Remedial Measures for the Control and Alleviation of Land and Soil Erosion and Siltation of Watercourses and Bodies of Water Affected Thereby

A. The Watershed District has worked with the four county SWCD's to promote the use of conservation tillage on all lands and to limit the use of the moldboard plow on highly erodible lands. Very few farmers are now using the moldboard plow for tillage.

B. The Watershed District has encouraged the use of perforated pattern tiling with no inlets and to limit the size of the inlet if one is needed. Also the installation of buffers around tile inlet and along public and private drainage systems, with the buffers being used for hay.

C. Require all tile inlet installed into any public drainage system to have a metal end and the water discharge to be away from the side slope of the ditch.

D. Seed spoils into a fast growing grass mixture with natural grasses mixed in for long term erosion control.

E. Diversion and control of many small waterways entering into streams and lakes.

F. Fix areas of erosion on a timely basis when found.

Regulating Improvements by Riparian Landowners of the Beds, Banks, and Shores of Lakes, Streams, and Marshes by Permit or otherwise in Order to Preserve the Same for Beneficial Use

A. All of the counties within the watershed District regulate the shoreline and stream activity by permit. The Watershed District is notified and makes comments on the permit issues before the Counties issue the permit. The DNR also requires permits in some cases of which the Watershed District can impose requirements. Some special permits are required from the Watershed District on larger projects that may affect the above mentioned areas.

B. There has been an effort by the Watershed District to not duplicate permit activity with other regulating units of government. This has worked well for the Watershed District.

Protecting and Enhancing the Quality of Water in Watercourses or Bodies of Water

A. The Watershed district has been monitoring flows and testing for nutrients since the formation of the District. There have been two CWP Projects with the MPCA in which considerable monitoring was done to locate sources of pollutants in the water. These studies were done on Grove Lake, Rice Lake and Koronis Lake. As part of the reports done on these studies, actions to improve the water quality were incorporated. The Watershed District then entered into agreements with the MPCA to work on the recommended actions from the study. There have been many thousands of dollars spent on projects to enhance water quality throughout the District.

B. Presently conducting a TMDL study in cooperation with the MPCA on Rice Lake.

C. There are presently 5 feedlots that will need to be improved in the District. The other 240 recorded feedlots have either been closed or improved and meet the requirements of the state feedlot rules.

D. Work regularly with the different county SWCD's on projects and funding project to enhance water quality.

Preservation and Protection of Wetlands of the District

A. The watershed District takes steps on each project to preserve the wetlands that are part of the project and sometimes enhance these wetlands by controlling outlets and making sure the outlets do not wash out during times of high water.

Conduct a Flood Study to Obtain Pertinent Hydrographic Data Necessary for Proper Evaluation and Design of Flood Control Projects within the District

A. The Watershed district did a study with the DNR on the flows of the river and this data was given to the DNR.

B. The DNR and FEMA have been working on updates to the flood plain maps.

Provide Means to Control Pollution of all Lakes and Watercourses within the District and to Control the Growth of Nuisance Algae and other Undesirable Organic Matter

A. This has been done through many different projects and is still in the process of being worked on as funding becomes available.

B. Projects included two Phase 2 CWP Projects with extensions, Several 319 Projects throughout the District, working with the SWCD's of the different Counties, furnishing funds to Stearns SWCD for the Urban Conservationist and Pheasants Forever for the buffer program, drainage repairs with seeded buffers and drop pipes, working with the city of Paynesville on storm water controls and assessments, working with Paynesville on Wellhead Protection, public education and TMDL study with MPCA for Rice Lake with recommendations to improve water quality in the lake.

Provide for the Proper Installation and Maintenance of Sewage Disposal and Treatment Systems within the District

A. Work with the counties on compliance issues with septic systems within the District. They do the permitting of the systems and certify the contractors.

B. Did a septic inspection around Rice and Koronis Lakes in 1995 which found that about 30% were out of compliance.

C. Are presently doing and certification inspection project throughout the District over a 5 year period starting in 2007. Have contracted with Stearns County to do the inspection in all counties.

D. Have provided low interest loans to landowner throughout the District from funds received from the MPCA which gets paid back to the state. Loans have totaled over $2 million.

E. Have applied for additional funds from the MPCA to help complete this process. Also Pope County has agreed to let the watershed use funds from the Department of Ag. To fund low interest loans to landowners.

Provide Assistance to Farming and Agricultural Interests by Creation of Repairs and Improvements Beneficial to Farming and Agricultural Uses within the District

A. Held meetings with landowners who requested repairs on the ditch systems administered by the district. These meetings resulted in repairs being done on all except 3 drainage systems within the watershed district.

B. Provided low interest loans and some grants to landowners to upgrade their feedlot to meet requirements.

C. Worked with landowners to install buffers and other conservation projects.

D. Put funds toward using methane to produce electricity to power a milking operation.

E. Extended culvert crossings in drainage system to accommodate large machinery and provide for safe crossing.

F. Remove beaver and dams from drainage ditches.

G. Survey to provide correct elevations for projects and structures.

H. Apply for permits as needed for projects to county, State and Federal.

Seek and apply for all public grants which may be available to the District to help pay the cost of improvements within the District

A. Have applied and received two CWP Phase one grants

B. Have applied and received two CWP phase two grants

C. Have applied for and received several other CWP grants

D. Have applied for and received 319 grants from MPCA

E. Have applied and received grants from the Department of AG

F. Have applied and received grants from the DNR for projects

G. Have applied and received grants from the BWSR

H. Have applied and received grants from FEMA for disaster help on three occasions

Any and all other purposes for which a Watershed District may be Established

A. Coordinate with other agencies projects and other issues pertaining to the whole of Minnesota such as the Mississippi corridor or basin, help coordinate on the Crow River basin, work with other adjoining watershed districts such as Middle Fork Crow River and Sauk River.

B. Work with Counties on joint projects.

C. Issue permits to private, corporate, state and federal agencies for projects which affect the Watershed District.

D. Work to achieve education on water issues for the schools and public

E. Monitor flows and water quality in ditches, streams and the river.

F. Monitor Water quality in Grove, Pirz, Rice and Koronis Lakes.

The Petition States that the proposed District would be Conducive to the Public Health and Welfare for the Following Reasons

1. **It would provide a governmental organization to plan, develop, and manage uniform and integrated water use in the watershed area and with the authority to engage in district-wide coordinated works of improvement and be the recipient of public grants.**

   A. The Watershed District coordinates with the other units of government in matters pertaining to water quality and quantity issues, such as feedlots, erosion site repair, improvements in utilities, studies, planning, education, and long term goals.

   B. The Watershed District has applied for and received grants from the MPCA, BWSR, DNR, FFW and others for projects that improve the quality of water within the district.

   C. The Watershed District's monitoring information is used by other units of government to justify their application for grants.

   D. The Watershed District is working with the MPCA as the primary contractor on the Rice Lake TMDL Study.

2. **To preserve and protect the natural beauty and uniform flow of the watercourses in the area and to alleviate the flooding which occurs within the area.**

   A. Fallen trees have been removed from the river in several locations with minimal damage to the surrounding stream and banks.

   B. Erosion areas have been and are being repaired as fund become avail is to do the repairs.

   C. Wetlands have been restored on private lands to hold water from large storm events.

   D. Steps such as culvert sizing are being taken to slow the water closer to where it falls and provide a more uniform flow.

3. To protect the quality of public waters;

A. Projects such as the Phase 1 study for Grove Lake, Rice Lake and Koronis Lake, have provided information to apply for, and receive, funding to do projects to improve the water quality.

B. The Watershed District has a yearly monitoring program which supplies the district information on how the small sub watersheds are doing and if there are problems.

C. Septic systems within the Watershed District are being inspected and brought into compliance with a project conducted by the Watershed District.

D. A program to supply low interest loan money to landowners was establish with the MPCA and has helped correct many failing systems. This program has been handled by the Watershed District.

E. The Watershed District has cooperated with the City of Paynesville, the SWCD's and other organizations to help provide education to students and citizens on how to protect water quality.

F. Storm drains in Brooten and Paynesville have been marked to make the public aware of problems with dumping contaminates into the storm drains.

G. Worked with the lake associations in developing plans for preserving the quality of water in the lakes.

H. Attend Lake Association meetings to keep them informed as to what is happening and receive feedback on what may need to be done.

I. Stay updated on the latest ways to protect water quality and trends.

4. To establish a coordinated system of repair and improvement to county ditches in the watershed area;

A. Did a record update project with funds from BWSR with match from the Watershed District to help make maps and other material usable by computer.

B. The District administrates all but one ditch system within the District.

C. Repairs have been done on all but three systems within the District.

D. Three ditches had redetermination of benefits done.

E. A drainage policy manual has been established for the ditches.

F. Develop and run assessments based on benefits establish for each system.

G. Provide for the removal of beaver and dams.

5. To establish a coordinated system of water control to solve pollution problems from nutrients from surface water runoff and inadequate sewage treatment systems;

A. The Watershed District has offered low interest SRF Loans to the residents in the District to upgrade their systems.

B. The Watershed District started a program of inspections of all systems within the District in 2006. This is a five year project.

C. Between the SWCD, FFW and the District there have been many small structures installed to hold and slowly release water.

D. Most farmers have switched to using less tillage resulting in more water being held on the land and less runoff.

E. Many of the ditches are well buffered with grass strips and sloped away from the ditch.

6. To encourage the establishment of soil conservation measures to avoid erosion and to improve the quality of water;

A. Provided funds to the Pope and Stearns County SWCD's for staff to work on projects within the Watershed District.

B. Work with Pheasants Forever and the SWCD's on funding for staff to work on the buffer program initiative.

C. Cost share on projects, feedlot upgrades and other restorations to make project feasible.

D. Use Joint Powers Engineer housed at the SWCD's office to design low cost projects to install on the land.

E. Promote programs along with the SWCD's and NRCS.

I. Watershed District Projects and Costs (1985 – 2009)

The following list of Projects and Costs were completed between 1985 and 2009. The project costs are estimated and include funds, such as grants, received from outside sources.

Overall Plan: Overall Plan development and monitoring for the Watershed District completed and approved in 1987.

Cost of Project – Staff In-kind

DNR – McCombs River Study: Done to calculate river pecks and flow during Variations of storm events and to model holding areas that would help alleviate flooding.

Cost of Project – $50,000

Grove Lake Water Quality Study Phase 1: The project started in1990 and was in 1993. The project involved intensive water monitoring of Grove Lake and its tributaries, plus development of correction measures to improve water quality

Cost of Project (including in-kind) – $75,000

Rice and Koronis Lake Water Quality Study Phase 1: The project started in 1990 and was completed in 1993. The project involved intensive water monitoring of Rice Lake, Koronis Lakes and the River from Paynesville to the outlet of Lake Koronis. Correction measures were developed to improve water quality.

Cost of project including in-kind – $75,000

Septic Inspection Project Rice and Koronis Lakes: This project was done in cooperation with both of the lake association by Michal Jacobson, with about 30% being out of compliance this lead to applying for SRF Loan money to provide landowners a way to correct the problem.

Cost of Project – $8,500

Rice Lake / Lake Koronis Restoration CWP Phase II Part I: Started in 1997 and completed in 2000 the project included septic upgrades, feedlot upgrades, erosion site repairs, BMP's.

Cost of project including in-kind – $1,069,250

Grove Lake Phase 2 CWP: The project started in 1997 and completed in 2000. Included SRF Loan Money of – $143,030.00, Monitoring, Erosion site repair, Septic upgrades, Feedlot upgrade and BMP's.

Cost of project including in-kind – $263,906

Grove Lake Dam Replacement: Replace the Grove Lake Dam and improved The outlet channel along with the DNR changing and improving their boat landing to use the Ditch channel for JD-1 in 2001.

Cost of dam replacement – $57,557

Mud Lake Restoration: Eight landowners in the Grove Lake area entered into a RIM Easement on the partially drained wetland along with a dam installed in the outlet in to the main of JD-1 where it exits Mud Lake.

Cost of Restoration and Dam – $175,000

Rice and Koronis Lakes Phase 2 CWP Part II: The project started in 1996 and had several project extensions included in the project SRF Loan Money and Grant used for Septic upgrades, Feedlot upgrades and BMPS, Erosion site repair on Rice Lake, Monitoring and other BMP's.

Cost of the project including in-kind – $716,774

319 Middle Watershed Project: The project started in 2001 it included SRF loan Money for septic upgrades and Feedlot upgrade, Monitoring, Erosion Prevention, site repair and BMP's

Cost of the project including in-kind – $184,283

319 Rice and Koronis Lake: The project had three sedimentation basin, wetland enhancement, Lake Scape restoration and education.

Cost of project including in-kind – $50,592

CWP Watershed Wide Project: The project started in 2005 included SRF Loan money for Septic Upgrades, Feedlot upgrades, BMP's, and Monitoring.

Cost of the project including in-kind – $418,087

Septic Certification Project: WD Board approved in 2006 and started in 2007, this is a five year project contracted with Stearns County with Joint Power Agreements' with Kandiyohi, Meeker and Pope Counties, to be completed in 2011.

Cost of the 5 year project is – $250,000

SRF Loans: There have been 184 SRF Loans processed through the WD and certified for collection through the property tax system.

Total SRF Loans distributed in the WD – $2,014,893

JD-1: Pope – Stearns ditch located near Grove Lake, turn over to the WD in 1992 benefits redetermined in 1999 with repair started in 2000, cost of the repair estimated at $650,000.00 with over 42 miles of open ditch.

Repair costs and beaver control – $543,132

JD-2: Kandiyohi - Stearns Turned over to the Watershed District in 1996, repairs completed on the lower and upper ends with crossing replacement.

Repair costs – $41,868

CD-4: Meeker County turned over to the Watershed District in 2003, benefits

redetermined in 1985 for repair done in 1985 by Meeker County. Repair done in 2007 by the WD.

Cost of repair and beaver control – $127,663

CD-5: Stearns County turned over to the Watershed District in 1995, the benefits were redetermined in 1996, with repairs being done on upper and lower ends with a change in the channel in on area.

Cost of repairs and beaver control – $240,591

CD-7: Was turned over to the Watershed District by Stearns County in 1998. CD-7 had an improvement done in the 1985 by Stearns County. Repairs have been done on several locations with parts of the old ditch being changed from open ditch to tile and tree spraying done on different occasioning. A water monitoring station is located near the lower end of CD-7.

Cost of repairs and maintenance – $54,047

CD-21: Stearns County turned over to the Watershed District in 1996. A redetermination of benefits was done in 1999 with repair to the entire ditch completed in 2002, a culvert was jacked under County Road 32 due to culvert under the highway being set out of grade.

Costs of repairs and beaver control – $125,205

CD-29: Stearns County turned over to the Watershed District in 2000. Benefits were redetermined in 1985 as part of an improvement done by Stearns County, a structure installed the sub-main of ditch 37 which is now part of CD-29. In 2006 the system was repaired and spraying for trees has been done, since being turn over to the Watershed District.

Cost of Repairs and beaver control - $48,005

CD-32: Stearns County turned over the Ditches to the Watershed District in 1998. There is no CD-8 benefit list for CD-8 or CD-46 but both systems are part of the benefits for CD-32. CD-46 CD 32 has several areas that have needed repair and spraying including part of the river channel above Big Grove Church. Failing tiles were replaced on one of the branches. Bankers Slough was restored after the outlet wash out due to high water level in 1999, CD-32 flows through this wetland. A new structure was installed in the fall of 2009 by the Watershed District. CD-8 is the outlet end of CD-32 this was repaired 2000 due to severe side bank erosion sheet pile and rip-rap was installed to protect a landowner's buildings. CD-46: Stearns County turned over the system to the Watershed District in 2000. CD-46 is part of CD-32 above Bankers Slough with benefits assessed through the CD-32 ditch system. This system has been repaired two times since it was turned over to the Watershed District.

Cost ***of repairs for the system including beaver control - $190,057***

CD-36: Stearns County turned the system over to the Watershed District in 1998. Some minor repairs and beaver dams have been removed.

Cost of repairs and maintenance- $8,599

CD-37: Stearns County turned over to the Watershed District in 1995. Repairs started in 1997 with the City of Brooten's request to lower the water table under Brooten because of water in over 50% of the homes in Brooten.

Cost of repair and beaver control - $196,559

CD-38: Stearns County turned over to the Watershed District in 1995. The tile systems upper end was replaced and spot repair on the rest of the system were completed in 1997.

Cost of Repairs - $51,824

Ditch Record Update: A grant was received in 2002 from BWSR to digitize the maps for the ditches and update the records for the ditches.

Combined cost - $33,500

Banker Slough Restoration 1999*:* the outlet of bankers slough washed out in 1998 due to high water the DNR with funding help from the FFW helped the WD install a sheet pile structure in the outlet which was designed by the SWCD. This cost about $7,000.00 due to improper design the center of the structure sank causing the outlet to settle after several years of settling a replacement structure was installed by the Watershed District in September 0f 2009.

Cost of replacement structure - $8,814

Bridge Over Wetland: In cooperation with Paynesville Township, the city of Paynesville, the Koronis Lake Association and others a span bridge was installed over a wetland at the west end of Lake Koronis by doing this it made it safer for the public to cross to the other side and preserved the wetland for water filtration the WD put $20,000.00 to the project.

Cost of Project - $60,000

Rain Garden: A rain garden was installed between the bike and walking trail on the south side of Lake Koronis the public has shown interest in the project.

Cost of the Rain garden - $5,964

Grove Lake Inlet: The inlet culvert under a Grove Lake Township road was replace by the township due to plugging and overflowing the road for safety reasons. The culvert was sized by the Pope County Highway Department. The WD and the Township split the cost of the project as the stream is also JD-1.

Cost of the culvert replacement - $18,000

CRP BUFFER: The Watershed District in cooperation with the Stearns SWCD and Pheasants Forever have help fund a position with the SWCD to promote buffers in the WD and other areas. This person could be used in all four counties covered by the WD.

Cost of Project - $11,800

Urban Conservationist: This position is with the Stearns County SWCD to help cities and towns with wellhead planning and areas that need to be protected.

Cost of Project - $4,000

FEMA: Funds from FEMA were received on three different occasions for spring damage repairs on several of the ditches under submittals from the WD.

Cost of repairs - $91,000

News Letters: There have been three news letters sent to every landowner within the WD.

Cost to WD - $13,512

Education: The WD in cooperation with the City of Paynesville, Lake Association, the SWCD's and others have held water festivals and other education events to promote not polluting the water and the environment.

Cost - $33,473

Small Projects: A wetland was enhanced along with the drainage of treated water in cooperation with the Koronis Lake Association and Paynesville Township. Feedlot abandonment and cleanup, Water storage basins, sediment removal basins, Rain gardens, Water diversions, Storm Drain Marking, gully erosion repair, and other BMP's.

Cost - $137,000

Monitoring: The WD samples 22 stream sites and 8 in lake sites with the analyses done by RMB Labs of Detroit Lakes. Costs include transportation, shipping, equipment and other expenses

Cost sampling and analyses - $278,882

TMDL RICE Lake: The MPCA has contracted with the WD to do a TMDL study on Rice Lake, project to finish in 2010.

Cost of TMDL - $138,837

In addition, there have been many small projects that have been done with the landowners cooperation and cooperation from the District's various stakeholders.