



Projects and Practices Drinking Water Application

Grant Name - Protecting Drinking Water Sources in Southern Washington County

Grant ID - C20-6433

Organization - Washington Conservation District

Allocation	Projects and Practices Drinking Water 2020	Grant Contact	Angela Defenbaugh
Total Grant Amount Requested	\$75,000.00	County(s)	Washington
Grant Match Amount	\$18,750	12 Digit HUC(s)	070102060902 ,070102060903 ,070300051203 ,070300051205 ,070300051206
Required Match %	25%	Applicant Organization	Washington Conservation District
Calculated Match %	25%	Application Submitted Date	
Other Amount			
Project Abstract	<p>The goal of this project is to protect drinking water quality in areas of rural southern Washington County that are vulnerable to groundwater contamination from nitrogen fertilizer. As part of this project, the Washington Conservation District will provide technical and financial assistance to agricultural landowners in these vulnerable groundwater areas to increase the implementation of nitrogen fertilizer best management practices and alternative management tools. Activities may include nonstructural and structural practices, such as increased continuous cover (diversified crop rotations, perennial crops, cover crops), retired cropland (conversion to native vegetation), and others identified to reduce nitrate leaching. The Washington Conservation District will work toward implementing up to 10 nitrogen fertilizer best management practice/alternative management tool projects on over 200 acres of agricultural land within the project area, and reach over 200 community members through education and engagement in groundwater pollution prevention and drinking water protection activities.</p>		

	<p>The anticipated outcome of this project is to make progress on reducing the amount of nitrate leaching into groundwater that serves as a drinking water source for private wells in southern Washington County.</p> <p>Agencies partnering with the Washington Conservation District are Washington County, East Metro Water Resource Education Program, South Washington Watershed District, Valley Branch Watershed District, City of Cottage Grove, Denmark Township, Minnesota Department of Agriculture, Minnesota Department of Health, University of Minnesota, Minnesota Land Trust, Natural Resources Conservation Service, and local landowners.</p>
<p>Proposed Measurable Outcomes</p>	<p>This project will result in up to 10 nitrogen fertilizer best management practice/alternative management tool projects on over 200 acres in the project area, and educating/engaging over 200 community members in drinking water protection activities.</p>

Narrative

<p style="text-align: center;">Questions & Answers</p>	
	<p>Does your organization have any active competitive CWF grants? If so, specify FY and percentage spent. Also, explain your organization's capacity (including available FTEs or contracted resources) to effectively implement additional Clean Water Fund grant dollars.</p>
	<p>Yes, the Washington Conservation District has active Clean Water Fund grant dollars from FY2016 and FY2017. FY2016 (C16-7245 – Ag BMP Soluble P) was last reported as 57.1% spent, but is expected to be complete within the planned timeframe. FY2017 (C17-6760 – Master Water Stewards) was last reported as 39.9% spent. Additional grant funds will be expended through a round of training for stewards this fall. The Washington Conservation District has a total of 17 highly trained and well-credited staff that specialize in outreach, design, installation, maintenance, administration, and monitoring of conservation practices. The Washington Conservation District has an established and successful conservation program that will contract or hire additional specialized staff to deliver high quality conservation practices if needed.</p>
	<p>Drinking Water Source: Identify the specific drinking water source the application is targeting for water quality.</p>
	<p>Groundwater aquifers as a source of drinking water for private well owners in southern Washington County are targeted for water quality through the projects and practices in this application. Examples of affected groundwater aquifers include the Jordan, Prairie Du Chien, Mt. Simon or Mt. Simon-Hinckley.</p>
	<p>Question 1. (20 points) A) For the proposed drinking water project, list the specific water management plan(s) that identifies this drinking water issue, including a comprehensive watershed management plan, county comprehensive local water management plan, soil and water conservation district comprehensive plan, metropolitan local water plan or metropolitan groundwater plan AND/OR the MN Department of Health (MDH) approved source water protection plan with a designated Drinking Water Supply Management Area (DWSMA). B) What prioritized activities from the plan (referred to above) does this application address?</p>
	<p>North & East Metro Groundwater Management Area Plan (2015), Washington County Groundwater Plan (2014-2024), Washington</p>

Questions & Answers

Conservation District Comprehensive Plan (2014-2019), South Washington Watershed District Watershed Management Plan (2016), Valley Branch Watershed District Watershed Management Plan (2015-2025). The North & East Metro Groundwater Management Area Plan identifies nitrogen fertilizer contamination in groundwater as a concern in Groundwater Management Areas. Collaboration with Minnesota Department of Agriculture on nitrate from fertilizer in groundwater is prioritized (Appx A). The Washington County Groundwater Plan (pg 56) prioritizes implementation of practices to contain and/or treat agricultural runoff. Identified activities include cover crops, development of nutrient management plans, and coordination with SWCDs and others to increase on-the-ground implementation efforts and funding to landowners. It also prioritizes an educational program related to agricultural nutrient management and the impact on groundwater. The Washington Conservation District Comprehensive Plan (pg 9) sets a goal to minimize the impacts of agricultural activities on natural resources. Prioritized activities include synchronizing programs to maximize local, state, and federal funds to implement agricultural conservation practices, promote nutrient management, and conducting education and marketing activities targeting agricultural issues. The South Washington Watershed District Watershed Management Plan (pg 58-61) prioritizes funding for local implementation actions identified in the Washington County Groundwater Plan, and implementation of conservation efforts to ensure long term viability of groundwater resources in southern Washington County. The Valley Branch Watershed District Watershed Management Plan (Sec 4.2) prioritizes educating the public on use of practices to prevent contamination of groundwater and the importance of these measures in protecting groundwater.

Question 2. (15 points)

Describe the methods/assessments used to identify, inventory, and target the contaminant sources or risks impacting the drinking water source of concern.

For Public Water Supplies, identify if the project is in a Drinking Water Supply Management Area (DWSMA) or a Surface Water Intake Drinking Water Supply Management Area (DWSMA-SW).

For private wells, identify the assigned vulnerability to groundwater contamination for the project area (https://www.dnr.state.mn.us/whaf/about/scores/geomorphology/g_i_psnsm.html). Also, state if the project is targeting wells identified as an area of concern (such the Minnesota Department of Agriculture's Township Testing Program <https://www.mda.state.mn.us/township-testing-program>, Groundwater Restoration and Protection Strategy or water management plan).

The Minnesota Department of Agriculture's (MDA) Township Testing Program was used to identify, inventory, and target the risk of nitrogen fertilizer contamination in groundwater as a drinking water source for private wells in southern Washington County. Initial MDA criteria to select townships for testing was if 30% of a township was vulnerable to groundwater contamination and 20% was in row crop production. Cottage Grove and Denmark met these criteria and MDA offered sampling in 2014-2015 to all Cottage Grove and Denmark homeowners using private wells. If nitrate was detected in the initial nitrate test kit, the homeowner was offered a follow-up nitrate test and a site assessment. Final nitrate results were determined using the two rounds of sampling and a process to remove faulty wells and those near potential non-fertilizer sources of nitrate. Results from the program showed 20.2% (Cottage Grove) and 8.3% (Denmark) of tested wells were above the 10 milligrams per liter (mg/L) Health Risk Limit for nitrate.

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The identified levels of contamination are in an area vulnerable to groundwater contamination, high groundwater sensitivity, and with elevated levels of contamination that pose a risk to human health. The assigned vulnerability to groundwater contamination for the project area is High (sensitivity rank 1) and Very High – Karst (sensitivity rank 0). This grant project is targeting private wells identified as an area of concern under Minnesota Department of Agriculture’s Township Testing Program in southern Washington County (Cottage Grove and Denmark).

A portion of Cottage Grove is also labeled a Drinking Water Supply Management Area (DWSMA). While this DWSMA does not trigger Part 2 of the Groundwater Protection Rule (DWSMAs with nitrate ≥ 5.4 mg/L), it is in an area of high and very high vulnerability to groundwater contamination and could benefit from preventative nitrogen fertilizer management.

Question 3. (15 points): How does this proposal fit with complementary work that you and your partners are implementing to achieve the goal(s) for the priority drinking water source(s) of concern? Describe the comprehensive management approach to this drinking water source(s) with examples such as: other financial assistance or incentive programs, easements, regulatory enforcement, or community engagement activities that are directly or indirectly related to this proposal.

This proposal fits in well with complementary work the Washington Conservation District (WCD), Washington County, East Metro Water Resource Education Program (EMWREP), City of Cottage Grove, Denmark Township, South Washington Watershed District, Valley Branch Watershed District, Minnesota Department of Agriculture (MDA), University of Minnesota, and other partners are implementing to protect groundwater as a drinking water source from nitrogen fertilizer contamination.

MDA and WCD signed a Joint Powers Agreement (JPA) to implement Minnesota’s Nitrogen Fertilizer Management Plan in areas of southern Washington County with elevated levels of nitrate in drinking water wells (Cottage Grove and Denmark). A Nitrogen Fertilizer Management Plan Local Advisory Team (LAT) was created in 2018 to address this issue with locally viable solutions. Before the JPA ends in June 2020, the LAT will identify nitrogen fertilizer best management practices (BMPs) and alternative management tools (AMTs) they think will work best in southern Washington County. The LAT will also begin to field test these BMPs and AMTs through MDA’s Nutrient Management Initiative Program.

The WCD has also partnered with EMWREP on community engagement activities to protect groundwater as a drinking water source. Through agricultural landowner surveys, rural lands workshops, and future easement workshops, the WCD will have a list of landowners with ranked interest in different nitrogen fertilizer BMPs and AMTs. Opportunities for implementation have been developed, but there is a lack of funding for landowners to implement the identified and tested nitrogen fertilizer BMPs and AMTs. Washington County does not have any Drinking Water Supply Management Areas (DWSMAs) triggering the Groundwater Protection Rule (DWSMAs with nitrate ≥ 5.4 mg/L), so prevention efforts are currently voluntary. Work under this grant would be put toward encouraging voluntary efforts to protect groundwater as a drinking water source.

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Question 4. (6 points): A) Describe the supporting information for the contaminant(s) subject to this application (such as nitrate clinic, MDA Township Testing Program, Ambient Water Quality Monitoring, TMDL, GRAPS or WRAPS) and its results. If there is trend data and analysis please describe that information here as well.

The Minnesota Department of Agriculture (MDA) established the Township Testing Program to determine current nitrate concentrations from nitrogen fertilizer in private drinking water wells on a township scale. One city (Cottage Grove) and one township (Denmark) in Washington County were selected to participate in this program from 2014-2015. Results from the program showed 20.2% (Cottage Grove) and 8.3% (Denmark) of wells tested were above the 10 milligrams per liter (mg/L) Health Risk Limit for nitrate.

Washington County and the MDA have also worked with the City of Afton to conduct a yearly nitrate testing clinic. Results from 2019 testing showed 18 out of 88 (20.5%) private wells tested above 5.4 mg/L nitrate, and seven out of 88 (8%) private wells tested above the 10 mg/L Health Risk Limit for nitrate. While private well testing in Afton was not performed as part of the MDA Township Testing Program, physical characteristics of the agricultural land in Afton are very similar to that in Cottage Grove and Denmark. If outreach, technical assistance, and financial assistance opportunities are exhausted in Cottage Grove and Denmark, these activities may be extended to lands in Afton as strategies to reduce nitrate loss and protect groundwater as a source of drinking water are identical.

**Question 5. (9 points): (A) What is the drinking water standard (via Maximum Contaminant Level, Health Risk Limit, or Health Based Value) for the contaminant(s) that is the subject of this application?
(B) If no drinking water standard has been set, describe the health risks associated with the drinking water contaminant.
(C) What is the estimated number of people affected by the contaminant(s) within the project area?**

The Minnesota Department of Health has established the drinking water standard for nitrate-nitrogen (nitrate) at 10 milligrams per liter (mg/L). This value is referred to as the Health Risk Limit, as nitrate in groundwater is a public health concern especially for pregnant women and infants under six months of age.

According to the Final Township Testing Nitrate Report: Washington County 2014-2015 (Minnesota Department of Agriculture, 2018), an estimated 1,425 households are on private wells in the project area (625 in Cottage Grove and 800 in Denmark). The estimated population within those households on private wells is 4,135 (2,360 in Cottage Grove and 1,775 in Denmark). Based on the Township Testing Program results, an estimated 619 people within the project area may have drinking water over the Health Risk Limit for nitrate.

Question 6. (17 points): (A) Indicate the measurable outputs such as acres of protected land, quantity of potential contaminant sources removed or managed, etc. (B) Describe the overall effects this proposed project will have on the most critical contaminant source(s) or threat(s). Where applicable, identify the progress toward the plan(s) goal that is achieved for the drinking water source after this project is completed.

The Washington Conservation District will work toward implementing up to 10 nitrogen fertilizer best management practice/alternative management tool projects on over 200 acres of agricultural land within the project area. This project will also educate and engage over 200 community members in groundwater pollution prevention and drinking water protection activities.

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The overall effect this proposed project will have on nitrate contamination from nitrogen fertilizer in groundwater is the reduction in the amount of nitrate leaching into groundwater that serves as a source of drinking water for private wells in southern Washington County. In areas with highly vulnerable groundwater, such as southern Washington County, the use of nitrogen fertilizer best management practices alone may not be enough to decrease the amount of nitrate leaching into groundwater to meet water quality goals. By implementing both nitrogen fertilizer best management practices and alternative management tools, the Washington Conservation District can support agricultural landowners in protecting their groundwater drinking water sources from nitrate leaching.

The North & East Metro Groundwater Management Plan, Washington County Groundwater Plan, Washington Conservation District Comprehensive Plan, South Washington Watershed District Management Plan, and Valley Branch Watershed District Watershed Management Plan all have a similar goal to minimize the adverse impacts of agricultural activities on natural resources. After this project is completed, progress will have been made toward achieving this shared goal from the identified plans. Prioritizing the implementation of nitrogen fertilizer best management practices and alternative management tools in southern Washington County allows progress toward managing nitrogen fertilizer and protecting groundwater as a drinking water source.

Question 7. (3 points): If the project will have secondary benefits, specifically describe, (quantify if possible), those benefits. Examples: hydrologic benefits, improved water quality for nearby private wells, enhancement of aquatic and terrestrial wildlife species, enhancement of pollinator populations, or protection of rare and/or native species.

Implementing nitrogen fertilizer best management practices (BMPs) and alternative management tools (AMTs) will have secondary benefits. BMPs and AMTs such as increased continuous cover (e.g. diversified crop rotations, perennial crops, cover crops) or retired cropland (converted portions of cropland into permanent cover, such as prairie) provide hydrologic benefit by allowing increased infiltration, and provide enhancement of habitat benefit for wildlife and insects including pollinators through the establishment of native vegetation.

Question 8. (8 points): What steps have been taken or do you expect to take to ensure that project implementation can begin soon after the grant award? Describe general environmental review and permitting needs required by the project (list if needed). Also, describe any discussions with landowners, status of agreements/contracts, contingency plans, and other elements essential to project implementation.

Project implementation will begin soon after the grant award, as outreach steps are planned or have already occurred.

Members of the Washington County Nitrogen Fertilizer Management Plan Local Advisory Team (LAT) will identify nitrogen fertilizer best management practices (BMPs) and alternative management tools (AMTs) they believe will work best in the project area, and submit a list to the Minnesota Department of Agriculture before June 2020. This list will highlight BMPs and AMTs to promote and implement in the project area. The LAT will also discuss nitrogen fertilizer field trials in southern Washington County. The field trials will locally test the BMPs and AMTs identified by the LAT and are planned to start in 2020. They will be used as demonstration sites to foster producer-to-producer learning.

The Washington Conservation District (WCD) collaborated with the East Metro Water Resource Education Program (EMWREP) to conduct

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outreach efforts toward agricultural landowners as part of the Lower St. Croix 1W1P process in 2018. A survey was sent to agricultural landowners in Washington County to gauge interest in practices such as improving soil health, converting land to natural areas, planting covers crops, trying out perennial crops, establishing conservation easements, etc. Approximately 20 agricultural landowners in southern Washington County returned surveys, and 19/20 were willing to consider trying at least one nitrogen fertilizer BMP or AMT. In 2019, WCD and EMWREP hosted a rural lands workshop to gather agricultural landowners input on barriers (such as technical knowledge and funding) to implementing certain practices, and identify which practices they would be willing to try if barriers were removed. The targeted information collected from these outreach efforts, as well as information collected from future planned workshops on easements and land conversion, will be an excellent starting point for implementing nitrogen fertilizer BMPs and AMTs.

Question 9. (2 points): What activities, if any proposed, will accompany your project(s) that will communicate the need, benefits, and long term impacts to your local community? This should go above and beyond the standard newsletters, signs and press releases.

The Washington Conservation District (WCD) will partner with the East Metro Water Resource Education Program (EMWREP), a partnership between cities, townships, watershed districts, and Washington County, to communicate the need, benefits, and long term impacts of nitrogen fertilizer best management practices (BMPs) and alternative management tools (AMTs) to the local community. In addition to engaging agricultural producers in nitrogen fertilizer BMPs and AMTs, WCD and EMWREP will work with Washington County's Nitrogen Fertilizer Management Plan Local Advisory Team (LAT) to develop a communications plan to talk to the public about the efforts being made to improve drinking water quality in southern Washington County and to provide resources and education on the importance of regular well water testing. The Washington County Groundwater Plan prioritizes developing an education program for agricultural nutrient management and the impact it has on groundwater. WCD and EMWREP plan to address this priority through the aforementioned education and outreach activities regarding nitrogen fertilizer BMP and AMT implementation, and will continue to involve Washington County staff in outreach planning.

Additional activities include highlighting nitrogen fertilizer field trial demonstration sites through community field days, and presenting nitrogen fertilizer management work to the Washington County Water Consortium. The consortium has representatives from watershed districts, joint powers agreement water management organizations, cities and townships, the Washington Conservation District, county departments, state and regional agencies, and interested citizens who work on surface and groundwater issues that cross local governmental boundaries. Previous work on Minnesota's Nitrogen Fertilizer Management Plan has been presented at the consortium, and any work under this grant will be discussed in a collaborative effort to protect groundwater as a drinking water source.

The Constitutional Amendment requires that Amendment funding must not substitute traditional state funding. Briefly describe how this project will provide water quality benefits to the State of Minnesota without substituting existing funding.

Amendment funding for this project would supplement other sources of local funding, such as watershed district cost-share, and not substitute traditional state funding. Implementation of nitrogen fertilizer best management practices and alternative management tools would not occur without the Amendment funding, and the Amendment funding will allow for the installation of drinking water quality protection projects ultimately resulting in drinking water quality benefits to applicable groundwater aquifers.

Application Budget

Activity Name	Activity Description	Category	State Grant \$ Requested	Activity Lifespan (yrs)
Program Development	Funds will support development and adoption of cost share and incentive policies and procedures. Outreach, marketing, advertising, and material development/preparation to promote activities under the grant.	PROJECT DEVELOPMENT	\$10,000.00	
Grant Administration	Funds will support grant administration and coordination, project reporting, and other administrative tasks necessary to ensure successful completion of the grant.	ADMINISTRATION /COORDINATION	\$5,000.00	
Technical Assistance	Funds will support technical assistance and engineering to implement practices supported under this grant.	TECHNICAL/ENGINEERING ASSISTANCE	\$20,000.00	
Cost Share/Incentives	Funds will provide cost share and incentive payments for installation of practices to support the goals of the grant. Funds will be targeted and implemented based on cost-benefit analysis, resource priority, landowner interest, and other site specific factors.	AGRICULTURAL PRACTICES	\$40,000.00	10

Proposed Activity Indicators

Activity Name	Indicator Name	Value & Units	Waterbody	Calculation Tool	Comments
Program Development	PREVENTION	200 COUNT	Groundwater as drinking water source in southern Washington County	Other	Number of community members educated and engaged in drinking water protection

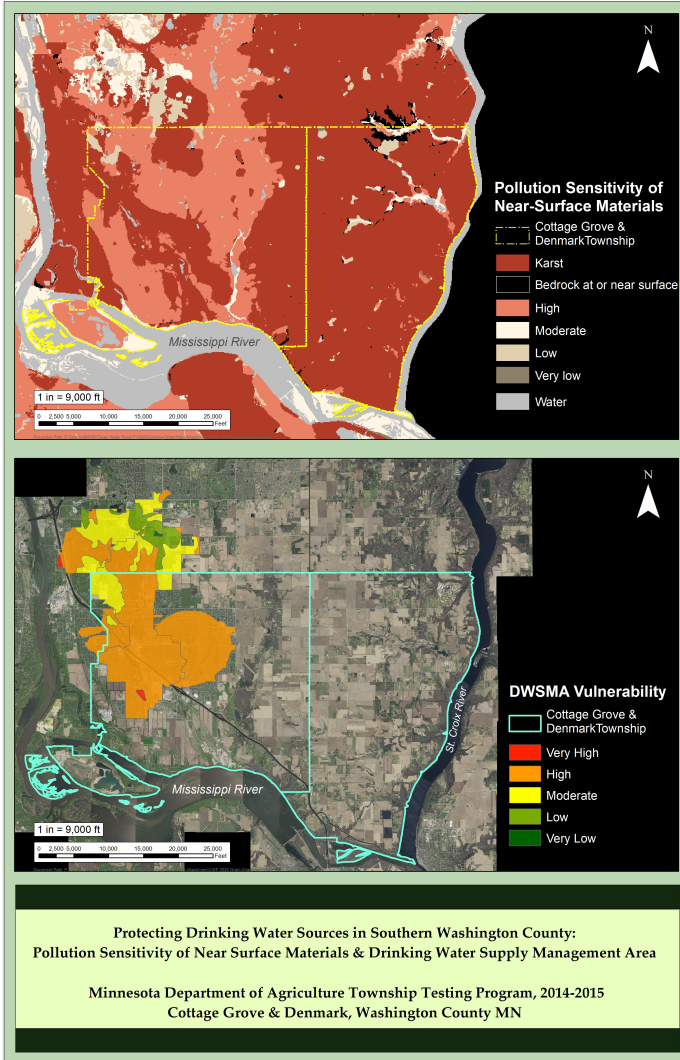
Activity Name	Indicator Name	Value & Units	Waterbody	Calculation Tool	Comments
Cost Share/Incentives	PREVENTION	10 COUNT	Groundwater as drinking water source in southern Washington County	Other	Number of implemented projects
Cost Share/Incentives	PREVENTION	200 COUNT	Groundwater as drinking water source in southern Washington County	Other	Acres of implemented projects

Activity Details

Activity Name	Question	Answer
Grant Administration	Dollar amount requested for Ag BMP Loan Program:	Not Entered
Grant Administration	Dollar amount requested for CWP Loans:	Not Entered
Program Development	Dollar amount requested for Ag BMP Loan Program:	Not Entered
Program Development	Dollar amount requested for CWP Loans:	Not Entered
Technical Assistance	Dollar amount requested for Ag BMP Loan Program:	Not Entered
Technical Assistance	Dollar amount requested for CWP Loans:	Not Entered
Cost Share/Incentives	Dollar amount requested for Ag BMP Loan Program:	Not Entered
Cost Share/Incentives	Dollar amount requested for	Not Entered

Activity Name	Question	Answer
	CWP Loans:	

Application Image



Map Image

