



# Blue Earth County / SWCD Watershed Implementation Targeting

2014 CLEAN WATER FUND ACCELERATED IMPLEMENTATION GRANT

Progress Report 2015

## Blue Earth County / SWCD Watershed Implementation Targeting

The Accelerated Implementation Grant will use Geographic Information Systems (GIS) analysis techniques and existing LiDAR (Light Detection and Ranging) elevation data to assess the probability of erosion on the landscape and determine locations where best management practices will be most beneficial to water quality.

The project will also analyze locations in the County where water can be stored on the landscape. This will provide important information for related projects like the County Greenprint-Wetland Management Plan. Data products from the project will also benefit related County functions like administration of the Wetland Conservation Act, ditch management, and stormwater management.

### Project Deliverables

- ⇒ A hydrologically conditioned digital elevation model (DEM) will be created.
- ⇒ Several GIS models including stream power index, compound topographic index, revised

universal soil loss equation will be used to analyze and rank areas throughout the County where best management practices can be best targeted.

- ⇒ GIS models will be used to assess areas where basins can be restored or used to retain and store water on the landscape.
- ⇒ County and SWCD staff will be trained to ensure users of the data can best utilize the data and model results.
- ⇒ A web map viewer will be created to allow people without GIS software to view the project results.
- ⇒ A project report detailing the methodology and maps/figures outlining the model results.

### Project Coordinator

Scott Salsbury  
Land Use Planner – GIS Specialist  
Blue Earth County Environmental Services

### Grant - \$69,000

\$62,100.00 spent through December 31, 2015.

### Local Match - \$25,000

\$23,367.31 spent through December 31, 2015.

Local staff time: \$8,853.56.

Local cash: \$14,513.75

### Results 2015

- ⇒ A hydrologically conditioned digital elevation model (DEM) completed.
- ⇒ Water quality models were ran and report provided to County.
- ⇒ Training session held with SWCD and County staff.





# Grant All-Detail Report

## Accelerated Implementation Grant 2014

**Grant Title** - Blue Earth County / SWCD Watershed Implementation Targeting

**Grant ID** - C14-7474

**Organization** - Blue Earth County

<b>Grant Awarded Amount</b>	<b>\$69,000.00</b>	<b>Grant Execution Date</b>	
<b>Required Match Amount</b>	\$17,250.00	<b>Grant End Date</b>	12/31/2016
<b>Required Match %</b>	25%	<b>Grant Day To Day Contact</b>	Scott Salsbury

### Budget Summary

	Budgeted	Spent	Balance Remaining*
Total Grant Amount	\$69,000.00	\$62,100.00	\$6,900.00
Total Match Amount	\$25,000.00	\$23,367.31	\$1,632.69
Total Other Funds	\$0.00	\$0.00	\$0.00
<b>Total</b>	<b>\$94,000.00</b>	<b>\$85,467.31</b>	<b>\$8,532.69</b>

*\*Grant balance remaining is the difference between the Awarded Amount and the Spent Amount. Other values compare budgeted and spent amounts.*

### Budget Details

Activity Name	Activity Category	Source Type	Source Description	Budgeted	Spent	Last Transaction Date	Matching Fund
GIS Models - Training - Web Map Viewer	Inventory/Mapping	Current State Grant	Blue Earth County / SWCD Watershed Implementation Targeting ..	\$32,000.00	\$25,100.00	5/5/2015	N
Hydrologically Condition Digital Elevation Model (DEM)	Inventory/Mapping	Current State Grant	Blue Earth County / SWCD Watershed Implementation Targeting ..	\$37,000.00	\$37,000.00	10/7/2014	N

Activity Name	Activity Category	Source Type	Source Description	Budgeted	Spent	Last Transaction Date	Matching Fund
Hydrologically Condition Digital Elevation Model (DEM)	Inventory/Mapping	Local Fund	Local cash match	\$16,000.00	\$14,513.75	11/9/2015	Y
Hydrologically Condition Digital Elevation Model (DEM)	Inventory/Mapping	Local Fund	Local staff time and resources	\$1,500.00			Y
Local QA/QC - Training Workshops - Testing Models - Validation - Implementing GIS Models	Inventory/Mapping	Local Fund	In-kind staff time and resources	\$7,500.00	\$8,853.56	12/19/2015	Y

### Activity Details Summary

Activity Details	Total Action Count	Total Activity Mapped	Proposed Size / Unit	Actual Size / Unit
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### Proposed Activity Indicators

Activity Name	Indicator Name	Value & Units	Waterbody	Calculation Tool	Comments
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### Final Indicators Summary

Indicator Name	Total Value	Unit
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## Grant Activity

### Grant Activity - GIS Models - Training - Web Map Viewer

<b>Description</b>	<p>GIS Models - Training - Web Map Viewer.</p> <ol style="list-style-type: none"> <li>1. Consultant will run the following models on the hydrologically conditioned DEM: Stream Power Index (SPI), Compound Topographic Index (CTI or Wetness Index), and Revised Universal Soil Loss Equation (RUSLE). Results will be analyzed for minor watersheds, ditchsheds, and also at the field scale. GIS data products for each model will be made available and reports will be generated.</li> <li>2. Consultant will provide training for SWCD and County staff regarding how to use and interpret GIS Models. After the training, additional model refinement, GIS tools or map viewer enhancements will be made to ensure that the County and SWCD have the ability and tools to analyze the model results and implement targeting and planning.</li> <li>3. A web based map viewer will be created to display all data models and terrain related products like contours and hillshades.</li> </ol>	
<b>Category</b>	INVENTORY/MAPPING	
<b>Start Date</b>		<b>End Date</b>
<b>Has Rates and Hours?</b>	No	
<b>Actual Results</b>	Consultant has ran all GIS Models and has developed reports for County. Data has been provided to County and SWCD. Consultant provided 4 hour training session on March 16, 2015 for SWCD and County Staff.	

### Grant Activity - Hydrologically Condition Digital Elevation Model (DEM)

<b>Description</b>	<p>County In-kind Match: County staff, Scott Salsbury, will develop bidding and award documents and contract for County Board approval to hire consultant.</p> <p>Grant Funds and County Cash to Consultant: Consultant will hydrologically condition the 2012 LiDAR Digital Elevation Model (DEM) for Blue Earth County so that the DEM accurately reflects water flow across the landscape. This involves identifying culvert locations and burning flow lines across any road/driveways. Consultant will also analyze basins to determine whether they contribute to flow in the watershed or whether they are closed basins.</p>	
<b>Category</b>	INVENTORY/MAPPING	
<b>Start Date</b>		<b>End Date</b>
<b>Has Rates and Hours?</b>	Yes	
<b>Actual Results</b>	Consultant has completed 99 percent of contract for DEM Hydrologic Conditioning and has completed 99 percent of work in developing water quality data sets.	

## Grant Activity - Local QA/QC - Training Workshops - Testing Models - Validation - Implementing GIS Models

<b>Description</b>	Local QA/QC - Training Workshops - Testing Models - Validation - Implementing GIS Models. Local County and SWCD staff will attend training workshops on the completed data and its use. Following the training workshop County and SWCD staff will review the hydrologically conditioned DEM for any errors or omissions. This will involve both GIS office work and field work verifying locations of culverts and basins. After the DEM is hydrologically conditioned, local staff will also review the various stages of the GIS models and model outputs to ensure their accuracy.		
<b>Category</b>	INVENTORY/MAPPING		
<b>Start Date</b>	5-May-14	<b>End Date</b>	
<b>Has Rates and Hours?</b>	Yes		
<b>Actual Results</b>	County staff discusses project with consultant and assemble existing data in May 2014. Staff reviewed draft DEM in July 2015. County staff identified additional burn lines and culverts to be added to DEM and reviewed draft DEM. Staff reviewed preliminary web map. County staff and SWCD attended training session on March 16, 2015 on the conditioned DEM, models and best practiced. Staff used data projects for several projects related to watershed contributing areas, wetlands and potential basins. County staff identified several key attributes that would be important to be added for other wetland basin prioritization. Draft DEM was used on many occasions for WCA applications and review processes in 2015.		

## Grant Attachments

Document Name	Document Type	Description
<b>2014 Competitive Grant</b>	Grant Agreement	2014 Competitive Grant - Blue Earth County
<b>2014 Competitive Grant executed</b>	Grant Agreement	2014 Competitive Grant - Blue Earth County
<b>All Details Report</b>	Workflow Generated	Workflow Generated - All Details Report - 01/26/2016
<b>All Details Report</b>	Workflow Generated	Workflow Generated - All Details Report - 03/06/2015
<b>All Details Report</b>	Workflow Generated	Workflow Generated - All Details Report - 08/14/2014
<b>All Details Report</b>	Workflow Generated	Workflow Generated - All Details Report - 01/30/2015
<b>All Details Report</b>	Workflow Generated	Workflow Generated - All Details Report - 08/16/2014
<b>Application</b>	Workflow Generated	Workflow Generated - Application - 10/03/2013
<b>Financial Report - August 2014</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting
<b>ImpairedWatersMap</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting
<b>Invoice - First - May 19, 2014</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting
<b>Invoice - July 02, 2014</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting
<b>Invoice - May 19, 2014</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting

Document Name	Document Type	Description
<b>Invoice - Second- July 2014</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting
<b>Invoice - Third- October 2014</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting
<b>SR_loc_10523.jpg</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting
<b>Work Plan</b>	Workflow Generated	Workflow Generated - Work Plan - 03/08/2014
<b>Work Plan</b>	Workflow Generated	Workflow Generated - Work Plan - 01/23/2014
<b>Work Plan</b>	Workflow Generated	Workflow Generated - Work Plan - 03/13/2014
<b>grantmap_10523_2013-10-02_12-21-11-PM.jpg</b>	Grant	Blue Earth County / SWCD Watershed Implementation Targeting