Item 8C.
BCWMC 10-17-13

Projects and Practices Application

Grant Name - Briarwood-Dawnview Stormwater Pond with Iron-Enhanced Filtration
Grant ID - C14-8340
Organization - Bassett Creek WMC

Allocation	**Projects and Practices 2014**	**Grant Contact**	**Amy Mikus**
Total Grant Amount Requested	$177,500.00	**County(s)**	Hennepin
Grant Match Amount	$59,500	**12 Digit HUC(s)**	070102060502
Required Match %	25%	**Applicant Organization**	Bassett Creek WMC
Calculated Match %	34%	**Application Submitted Date**	10-2-2013
Other Amount			
Grant Abstract	Construction of a new stormwater pond with iron-enhanced filtration for the Briarwood/Dawnview watershed will remove 70% (29,600 lbs) of total suspended solids and 55% (94 lbs) of phosphorus annually from a currently untreated 184-acre subwatershed that drains to Bassett Creek. Bassett Creek is a major stream; its watershed includes the cities of Crystal, Golden Valley, Medicine Lake, Minnetonka, New Hope, Plymouth, Robbinsdale, and St. Louis Park. The 2004 Bassett Creek Watershed Management Commission (BCWMC) Watershed Management Plan incorporated the recommendations of the 2000 Bassett Creek Main Stem Watershed Management Plan, which established water quality improvement goals for Bassett Creek, including reducing sediment and phosphorus loadings, with the goal of maintaining Bassett Creek as a BCWMC Level III water body suitable for fishing, wildlife observation, and aesthetic appreciation. In 2013 the BCWMC commissioned a feasibility study on the installation of a water quality improvement project for a 184-acre subwatershed of Bassett Creek. The report recommended installing a stormwater pond with iron-enhanced filtration to improve removal of total phosphorus and suspended solids from stormwater before draining to Bassett Creek. In addition to improving the water quality of stormwater draining to the creek, construction of the pond will have the hydrologic benefit of removing		

	1 acre-foot of the stormwater volume draining to Bassett Creek every year through evaporation and seepage losses.

Narrative

Questions & Answers
Did your organization receive CWF grant dollars in FY 2012 and/or FY 2013? If less than 50% of a FY2012 or FY2013 grant has been spent, please explain your organization's capacity to take on additional Clean Water Fund grant dollars.
The BCWMC received a CWF grant in 2012 for improvements to the Bassett Creek Main Stem. This project is still in the design phase and its estimated completion date is summer 2014. The BCWMC also received CWF grants in 2010 and 2011 for projects located in the Cities of Golden Valley and Plymouth. The 2010 grant has been successfully completed and the 2011 grant will be closed out by the end of 2013. Through their past successes in completing and closing out CWF-funded projects, the BCWMC and the City of Golden Valley have shown their ability to effectively use grant funds to achieve improvements in water quality.
Project Description: 1. Describe how this investment of public dollars will benefit public resources.
Bassett Creek is a major water resource for north Minneapolis and the northwest suburbs of Minneapolis. Its watershed is nearly 40 square miles and it flows through several high-density residential areas, adding visual interest and a natural water feature to these neighborhoods. The creek is also a major water feature in several urban parks, including Theodore Wirth Park in Minneapolis. A new stormwater pond with iron-enhanced filtration would decrease the sediment and phosphorus loading to Bassett Creek and improve the water quality in both Bassett Creek and its receiving waterbody, the Mississippi River.
Relationship to Plan: 2. Identify the specific comprehensive local water management plan reference by plan organization, plan title, section and page number.
The proposed Briarwood/Dawnview Water Quality Improvement Project is included in the BCWMC's 2004 Watershed Management Plan through a major plan amendment approved by BWSR in August 2013. The major plan amendment added this project to the BCWMC's capital improvement program (Table 12-2) as project BC-7, slated for construction in 2014. The proposed project is also included in Section 12.6.6 of the amended 2004 Plan. Page 18 of the Bassett Creek Main Stem Watershed Management Plan (2000) describes the need for stormwater treatment in the Lower Drainage District of the Main Stem of Bassett Creek, where the proposed Briarwood/Dawnview stormwater pond and iron enhanced filter will be located.
Relationship to Plan: 3. Describe how the activities in this application relate to the reference in your comprehensive local water management plan.
This new stormwater pond was included in the major plan amendment because it meets the stated Watershed Management Plan goal of improving the quality of stormwater runoff to Bassett Creek. It is specifically listed in the BCWMC's CIP as a project to be completed in 2014. Pond construction and iron-enhanced filtration provide cost-effective removal of phosphorus and suspended solids from stormwater which currently drains directly to Bassett Creek without receiving any treatment.
Targeting: 4. Describe the methods and results of inventory and source targeting done to date to identify the most critical pollution sources or risks with in the project area that are responsible for causing impairments or threats to surface and/or groundwater quality. Describe any further prioritization or targeting that would need to take place before project implementation could begin.
The already completed feasibility study for the Briarwood/Dawnview Water Quality Improvement Project evaluated five options and concluded that a stormwater pond with an iron-enhanced filter had the lowest annualized cost per ton for total suspended solids and the lowest annualized cost per ton

Questions & Answers
for removal of total phosphorus. This is a beneficial location for a stormwater pond because the land is currently vacant, it is owned by the City of Golden Valley and can be used for a public resource, and it has well-drained soils that are suitable for pond construction. The location of the proposed pond is shown in the Site Location Map.
Targeting: 5. How does this application fit into an overall watershed protection and/or restoration strategy implemented by your organization and your partners?
The proposed Briarwood-Dawnview stormwater pond is listed as part of the BCWMC's Capital Improvement Program (CIP) for 2014. CIP projects address TMDLs, impaired waters, or other goals outlined in the BCWMC's Watershed Management Plan. After the BCWMC adds a project to the CIP, the BCWMC authorizes preparation of a feasibility study for the project. The BCWMC then orders construction of the project based on feasibility study recommendations.
Targeting: 6. Describe how you will engage your local community on the need and benefits of this project.
The BCWMC held two public hearings on this project, one in June 2013 as part of the major plan amendment process and one in September 2013 to order the project. The City of Golden Valley will complete stakeholder outreach activities, such as public meetings, during project design. The City will continue to meet with stakeholders as part of the final design process, and the design approval process by the BCWMC will provide additional opportunities for public input before project construction begins.
Measureable Outcomes: 7. Describe how the application activities directly address the pollutant of concern and how they will achieve beneficial water quality outcomes.
Iron-enhanced filtration mixes iron with the traditional filtration media, which improves the rate of both dissolved and particulate phosphorus removal via a chemical reaction. Installing the pond upstream of a stormwater discharge point allows sediment to settle out before it continues downstream. The addition of a filter increases the pond's sediment removal efficiency and decreases the surface area required to achieve a given reduction in sediment and phosphorus loading. This combination of a pond and a filter will decrease the loading of phosphorus and sediment to Bassett Creek and therefore to the Mississippi River.
Measureable Outcomes: 8. Describe the root cause of the water quality issue being addressed by the application activities. How is the proposed project addressing this root cause?
Urban stormwater runoff contains sediment from sources such as eroding soil and sand applied to roads in winter. Phosphorus sources include washoff from impervious surfaces, sediment in waterbodies, and leaf litter. High levels of sediment in stormwater can clog manholes and drop structures, scour stormwater pipes, and cause deposition of sand and gravel in streams, which degrades aquatic habitat. Excessive phosphorus encourages algae growth and depletes available oxygen in streams. Bassett Creek is currently listed as impaired for aquatic life due to fish bioassessment. This project will directly remove existing phosphorus and sediment in stormwater runoff, which will improve water quality in the main stem of Bassett Creek. Expected water quality improvements include increased water clarity, decreased non-biotic demand for oxygen, fewer algal blooms, and decreased sediment deposition in the stream bed. These improvements will provide improved habitat for fishes in Bassett Creek. A reduction in sediment and phosphorus loading to Bassett Creek will also reduce sediment and phosphorus loads to the Mississippi River, which is a source of drinking water for the City of Minneapolis. Reductions in sediment and phosphorus loads from Bassett Creek will also help address impairments on the South Metro Mississippi River (turbidity) and Lake Pepin (excess nutrients).
Measureable Outcomes: 9. Describe any hydrologic benefits resulting from completing application activities such as peak flow reduction, runoff volume reductions, etc. If your project intends to keep water on the land by infiltrating runoff, describe why this activity will not be a threat to groundwater quality.

Questions & Answers
The installation of a stormwater pond will reduce peak flows during smaller storm events, which will decrease the erosive power and flood potential of Bassett Creek downstream of the pond. The pond will also be responsible for an annual loss of 1 acre-ft of runoff to the creek through seepage and evaporation.
Measureable Outcomes: 10. Will the overall project have additional secondary benefits, including those that enhance aquatic and terrestrial wildlife, improve native habitats, or protect rare and native species? If so, please specifically describe what will be done.
The City of Golden Valley will maintain a buffer strip of native vegetation around the new pond. The City of Golden Valley will share lessons learned from installing this relatively new stormwater treatment technology with the BCWMC and its member cities to asses the viability of using this treatment option for improving the water quality of stormwater runoff around the watershed.
Project or Practice Readiness: 11. Describe the strength of staff qualifications and other collaborating organizations, including the participation of appropriate local, state, or federal government, to the success of this project.
The BCWMC facilitated the completion of several CIP projects by reimbursing member cities for the costs of implementing projects in the BCWMC CIP. Per the CIP and approved major plan amendment, the Briarwood-Dawnview project is slated for construction in 2014. The City of Golden Valley has successfully completed several CIP projects in recent years, including two funded in part by CWF grants in 2010 and 2011. For the Briarwood-Dawnview project, the BCWMC will enter into an agreement with the City of Golden Valley to construct and maintain the project, and the BCWMC will reimburse the city accordingly.
Project or Practice Readiness: 12. Will construction start by the end of calendar year 2014? Provide an anticipated timeline when implementation activities are to begin, including project development and construction.
Construction on this project is anticipated to begin in June 2014 following final design of the pond. The expected project completion date is summer 2015.
Project or Practice Readiness: 13. List and provide the status of any permits (federal, state, or local) that may be required for this project (for example, NPDES construction permit applied for on January 1, 2013, etc.).
The feasibility study included a preliminary wetland delination, which indicated that the proposed pond is not located in a wetland. A final wetland delineation must be completed to confirm this finding. The project does not involve work in a public water. Design plans and specifications must be approved by the BCWMC before construction can begin. The City of Golden Valley will apply for all required permits, including an NPDES construction stormwater permit (if it is needed), as part of the final design process.
BBR: 14. Did your organization submit a Biennial Budget Request (BBR) to BWSR in 2012?
Yes.
The Constitutional Amendment requires that Amendment funding must not substitute traditional funding. Briefly describe how this project will provide water quality benefits to the State of Minnesota without substituting existing funding.
The BCWMC funds its CIP projects through an ad valorem tax levied by Hennepin County over the entire Bassett Creek watershed. Through the ad valorem tax, it is possible to generate enough funding to complete an average of one CIP project per year. Receiving a CWF grant means the BCWMC can leverage their currently available dollars to fund more projects. Beginning additional projects helps the BCWMC meet established water quality goals and provide needed jobs without raising the ad valorem tax. If necessary, the BCWMC would also be willing to accept grant funding of less than the 75 percent of project costs requested from BWSR in this application.

Application Budget

Activity Name	Activity Description	Category	State Grant $ Requested	Activity Lifespan (yrs)
Project Design and Permitting	Final stormwater pond design, completion of permitting activities.	TECHNICAL/ENGINEERING ASSISTANCE	$19,500.00	1
Project Construction	Project construction, construction observation and oversight, project bidding.	STORMWATER PRACTICES	$156,000.00	50
Grant Administration	Grant Administration	ADMINISTRATION /COORDINATION	$2,000.00	2

Proposed Activity Indicators

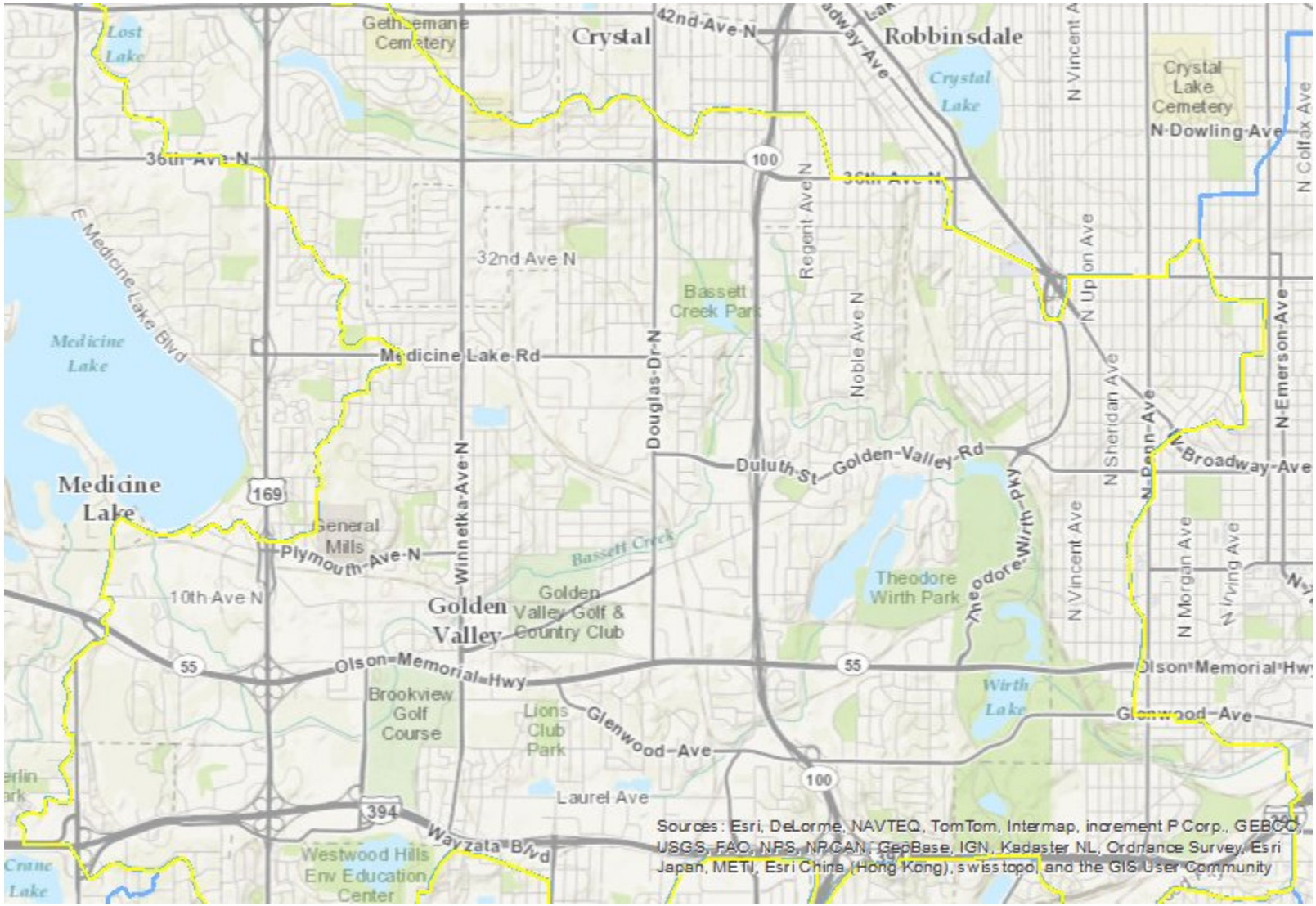
Activity Name	Indicator Name	Value & Units	Waterbody	Calculation Tool	Comments
Project Construction	SEDIMENT (TSS)	14.8 TONS/YR	Bassett Creek	P8 Urban Catchment Model	From feasibility study
Project Construction	PHOSPHORUS (EST. REDUCTION)	94 LBS/YR	Bassett Creek	P8 Urban Catchment Model	From feasibility study

Activity Details

Activity Name	Question	Answer
Project Design and Permitting	Dollar amount requested for Ag BMP Loan Program:	Not Entered
Project Construction	Dollar amount requested for Ag BMP Loan Program:	Not Entered
Grant Administration	Dollar amount requested for Ag BMP Loan Program:	Not Entered

Application Image

Map Image


Lost Lake
Gethsemane Cemetery
Crystal
42nd Ave N
Robbinsdale
Crystal Lake
Crystal Lake Cemetery
N Dowling Ave
N Colfax Ave
36th Ave N
100
E Medicine Lake Blvd
32nd Ave N
Regent Ave N
Bassett Creek Park
N Upton Ave
Medicine Lake
Medicine Lake Rd
Douglas Dr N
Noble Ave N
N Sheridan Ave
N Emerson Ave
Duluth St
Golden Valley Rd
N Broadway Ave
Medicine Lake
169
General Mills
Plymouth Ave N
Winnetka Ave N
Bassett Creek
Theodore Wirth Pkwy
N Vincent Ave
N Morgan Ave
N Irving Ave
10th Ave N
Golden Valley
Golden Valley Golf & Country Club
Theodore Wirth Park
55
Olson Memorial Hwy
Brookview Golf Course
Lions Club Park
Glenwood Ave
Wirth Lake
Laurel Ave
394
Wayzata Blvd
Westwood Hills Env Education Center
Crane Lake
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community