

2012 Bassett Creek Main Stem Restoration Project

Wisconsin Avenue to 10th Avenue & Duluth Street to Crystal border, Golden Valley
(BCWMC Project 2011 CR)



FINAL REPORT
December 2014

I. Project Timeline and Key Documents

- Identified in the BCWMC Resource Management Plan (July 2009) for stream channel restoration (<http://www.bassettcreekwmo.org/WaterData-Projects/ResourceManagementPlan.htm>)
- Feasibility Report by Barr Engineering, September 2010 (http://www.bassettcreekwmo.org/Meetings/2010-September/5-Bassett%20Creek%20Reach%201%20Restoration%20Project%20Feasibility%20Report_Final_full.pdf)
- Agreement between BCWMC and Golden Valley signed in October 2010 (copy found here: <http://www.bassettcreekwmo.org/Meetings/2014/2014-January/4D%20Backup%20Documents%20for%20GV%20Reimbursement.pdf>)
- Public Participation Process
 - August 2011 – informational meeting with residents
<http://www.goldenvalleymn.gov/surfacewater/projects/2012/pdf/information-meeting-pp-8-17-11.pdf>
 - November 2011 – open house showing final design
- Project construction milestones
 - June 2012 – award contract
 - December 2012 – construction begins
 - March 2013 – work substantially complete
 - September 2013 - final walkthrough, some vegetation touch up remains
 - November 2013 – project acceptance, final payment processed
 - November 2015 – two-year warranty period ends
- Project completed in 2013 and final reimbursement paid January 2014 (<http://www.bassettcreekwmo.org/Meetings/2014/2014-January/4D%20GV%20Reimbursement%20Request.pdf>)

II. Project Area

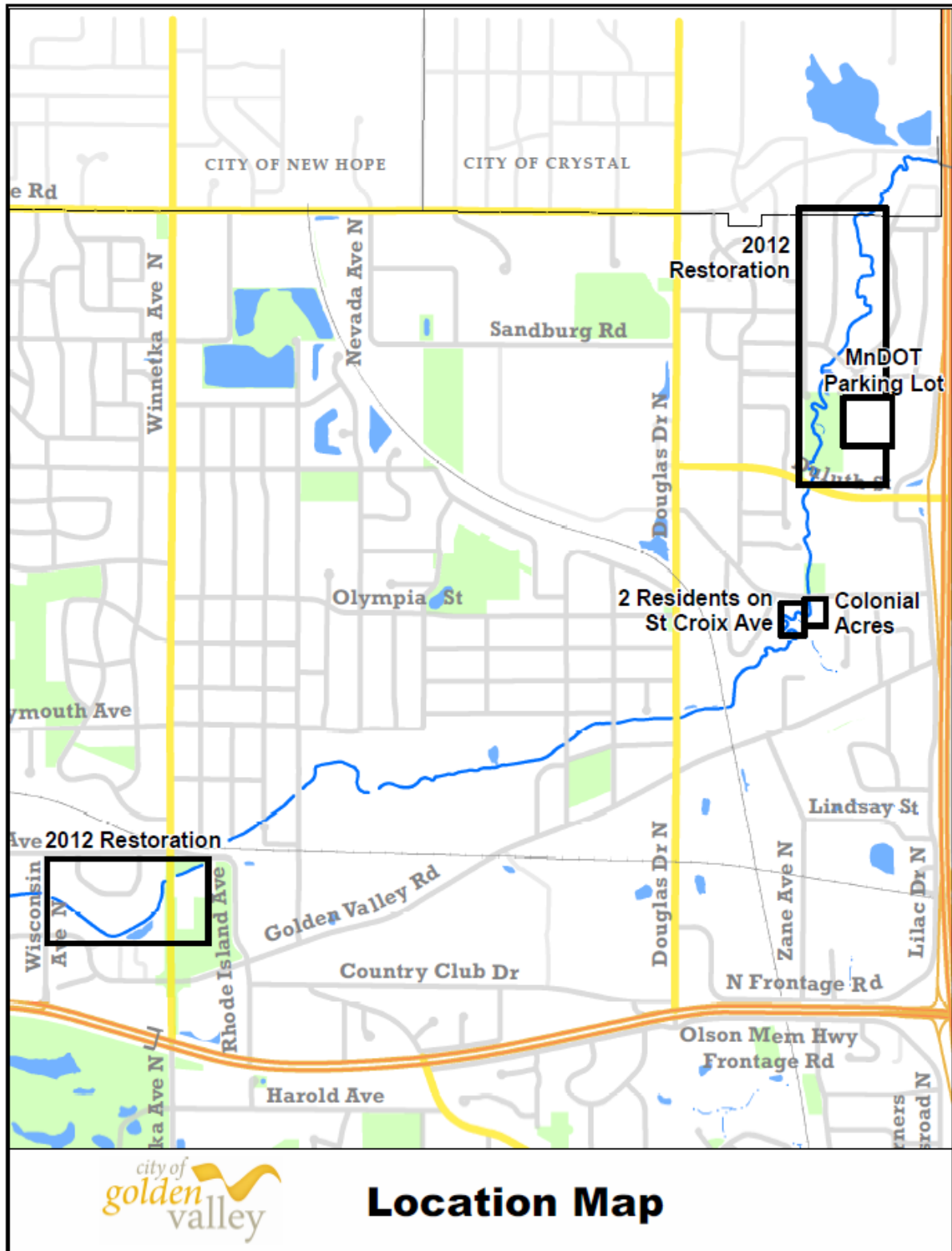
The overall project area defined in BCWMC project 2011 CR is described as Wisconsin Avenue to 10th Avenue & Duluth Street to the Crystal border, in the City of Golden Valley.

In addition to the project area described above, the property owner at 5825 St. Croix Avenue (Colonial Acres Care Center) expressed interest in being added to the City's contract, and funded 100% of the work on its property with private dollars. This work totaled \$89,000.

In a partnership with MnDOT (letter of understanding), the City and BCWMC repaired and realigned a deteriorated pipe outlet owned by MnDOT, located within the project area. In exchange, MnDOT constructed two new catch basins and a sediment trap/sump structure in its truck station parking lot to address debris and erosion issues in the City's Bassett Creek Nature Area and to improve water quality in Bassett Creek.

To further complement the efforts above, two Golden Valley property owners on St. Croix Avenue, immediately adjacent to the Colonial Acres Care Center, stabilized their own streambanks with the help of BCWMC channel maintenance funds.

A map showing these areas is below:



III. Project Description

Approximately 3,600 feet of shoreline was stabilized under the 2011 CR project and an additional 770 feet was stabilized with private funding sources. In general, the streambank stabilization techniques used in the construction of the 2011 CR project were chosen based on the existing conditions present including flows and velocities, stream morphology, shade cover, and input from property owners. The stabilization techniques included the following:

- Reshaping eroding streambanks to achieve a gentle slope
- Stabilizing the toe of the slope, and in some cases higher on the bank, with various sizes of field stone
- Rip rap stabilization
- Installing live stakes of willow and dogwood
- Seeding and blanketing disturbed areas with native shoreland mix
- Tree removal required to access and construct the project also served to increase light penetration for native vegetation growth
- Culvert stabilization (including pipe realignment to angle downstream)

In addition, the following improvements and benefits were also realized:

- Two new storm sewer pipes with sump structures were installed to serve industrial parking lots that previously discharged over land through eroded channels
- Two deteriorated pipe outlets were repaired to meet current engineering standards
- Storm sewer improvements in MnDOT's parking lot will improve the City's nature area and water quality, as discussed earlier in this report
- Removal of numerous dead, dying, or leaning softwood trees will reduce the potential for obstructions and flooding. This also reduces the safety risks to staff that remove these obstructions during and after storms.
- Removal of weeds and invasive species (buckthorn, reed canary grass, leafy spurge, spotted knapweed) incidental to the tree removal
- Preserving and enhancing the natural aesthetics along Bassett Creek and contributing to the natural habitat and species diversification by establishing native vegetation
- Preserving/protecting the "island" formed by the divergence and convergence of the creek in the Bassett Creek Nature Area (as requested by residents)
- Preventing future channel erosion and associated negative water quality impacts on the creek and downstream water bodies
- Prevention of additional property loss in parks, nature areas, the library and private properties

Completion of the 2011 CR project reduced the overall pollutant load to the Main Stem of Bassett Creek. The feasibility report for the project computed that the proposed work would reduce total phosphorus loads by an estimated 60 pounds per year and reduce total suspended sediment by an estimated 105,000 pounds per year.

IV. Funding

No grant funds were secured for the project. As discussed earlier in this report, the original 2011 CR project helped to catalyze a number of other projects and improvements in the area. Below is a detailed breakdown of the funding sources for the 2011 CR project and related improvement projects.

2012 Creek Restoration Project (2011 CR)

\$ 580,000	BCWMC CIP (includes feasibility report, construction, engineering, administration, legal)
\$ 48,000	City (toward construction of 2011 CR)
\$ 89,000	Colonial Acres Care Center
\$ 20,000	MnDOT storm sewer/parking lot improvements (estimate of in kind materials and services)

2012 Private Streambank Stabilization project on St. Croix Avenue

\$ 17,900	(2) property owners on St. Croix Avenue
\$ 17,900	BCWMC Channel Maintenance Funds (facilitated through City)

V. Maintenance

Following project completion, the City's maintenance routine has consisted of walking the creek and inspecting the stabilization practices twice a year for two years through the warranty period. During the warranty period the contractor has been required to add seed in some areas.

Following the warranty period, the City anticipates inspecting the project area at least once a year. There is no budget for long-term maintenance, in particular vegetation maintenance, along the creek. Prairie Restorations, Inc. has been asked to submit a proposal for maintenance of a couple high traffic / high visibility areas on public properties, which may be included in the City's annual contract in the future. The City is currently developing a Natural Resources Management Plan which may include policies and a maintenance schedule for activities such as tree removal, invasive species management, and vegetation management along streams within the nature areas. However, there is no budget for these activities at this time.

Based on past project experience, it is anticipated that there will be very little maintenance required for the stone/rock practices installed with this project. In fact, the 2011 CR project area fared very well during the flooding this past June. Staff will continue to watch the project area to see if flooding, frost heave, or subsidence shifts the stones out of place, and we will mobilize to address these concerns once discovered.

VI. Lessons Learned

Communicating with residents early and often helped to ensure a successful project.
Informational meeting, open house, site visits, and many letters helped to prepare property owners for the visual and audible impacts of construction.

Winter construction works well.

Working during low flows and on frozen ground helps minimize the potential for erosion, mud tracking, rutting, and other impacts to properties, especially on compressible floodplain soils.

Constructing in winter also gives us the ability to witness the improvements during the spring snowmelt and spring and summer rains to see how the practices perform under higher flows and velocities. This allows time for repair and maintenance of the practices prior to final stabilization.

Secure all access and easements before bidding, if possible.

Due to the lack of permanent and temporary easements, and therefore access, the portion of the project between Westbrook Road and the Crystal border was eliminated from the contract. There are still a few areas experiencing erosion in this reach that could benefit from streambank stabilization. Some property owners adjacent to these areas have expressed interest in working with the City or BCWMC to stabilize these areas in the future. The BCWMC may want to consider how to address these areas in the future.

Vegetation establishment is challenging.

Based on this project and past projects, it is evident that establishing and maintaining native vegetation along the banks is challenging, especially during a two-year warranty period. Once the project is completed and the contractor paid, contractors and their subcontractors are not very interested in coming back to work sites (without pay) to touch up and maintain vegetated areas. Bond and insurance companies are not interested in keeping contracts open for three years, and cities and watersheds are probably not interested in doing that either. There is very little leverage to get contractors to come back to perform a quality job, except perhaps the threat of losing their good standing and ability to bid on the next job.

In the future, the BCWMC may want to consider funding the retention of a professional company under separate contract to maintain newly established native vegetation over two or three growing seasons, following completion of CIP projects watershed-wide. Alternatively, a BCWMC CIP project could be broken into two contracts bid at the same time – one that covers construction and vegetation establishment, and one that covers vegetation maintenance over two or three growing seasons. The member city would manage both projects on behalf of the BCWMC. This will be especially important in the upcoming 2015 creek restoration project with the number of private properties involved.

Long term vegetation maintenance

- Since the project warranty period just ended, it is not yet clear whether the private property owners will maintain the vegetation along their streambanks. This would involve management to preserve the native vegetation and remove the inevitable invasion of weeds, buckthorn, and reed canary grass.
- It is also unclear whether the City will be able to properly maintain the vegetated areas within public properties to keep out weeds and invasive species in the long term.

Live stakes are okay.

Live stakes of willow and dogwood can be a benefit to streambank projects when they flourish. However, it seems like a small percentage of live stakes are still viable one or two years after project completion. This should continue to be monitored during the warranty period and beyond, while new or additional vegetation options are explored in future projects.

Some tree removal is beneficial.

- Removing trees in densely shaded areas helps increase light penetration for understory, ground cover, and native seed growth.
- A significant amount of buckthorn was removed within the work areas incidental to the clearing and grubbing.
- Removing large softwood trees that were dead, dying, or leaning over the creek helped reduce the potential for flood obstructions and the liability to City staff responsible for clearing the obstructions during and after storm events.

Partnering is good and saves taxpayer dollars.

Although no grant funds were secured for this project, partnering with MnDOT and private property owners in Golden Valley brought an additional investment of \$126,900 for improvements along Bassett Creek that otherwise would not have occurred.

VII. Photos

Before construction











During construction











After construction



