

# Bassett Creek Main Stem Restoration Project

## 10th Avenue to Duluth Street, Golden Valley (2015CR)



FINAL REPORT  
March 10, 2019

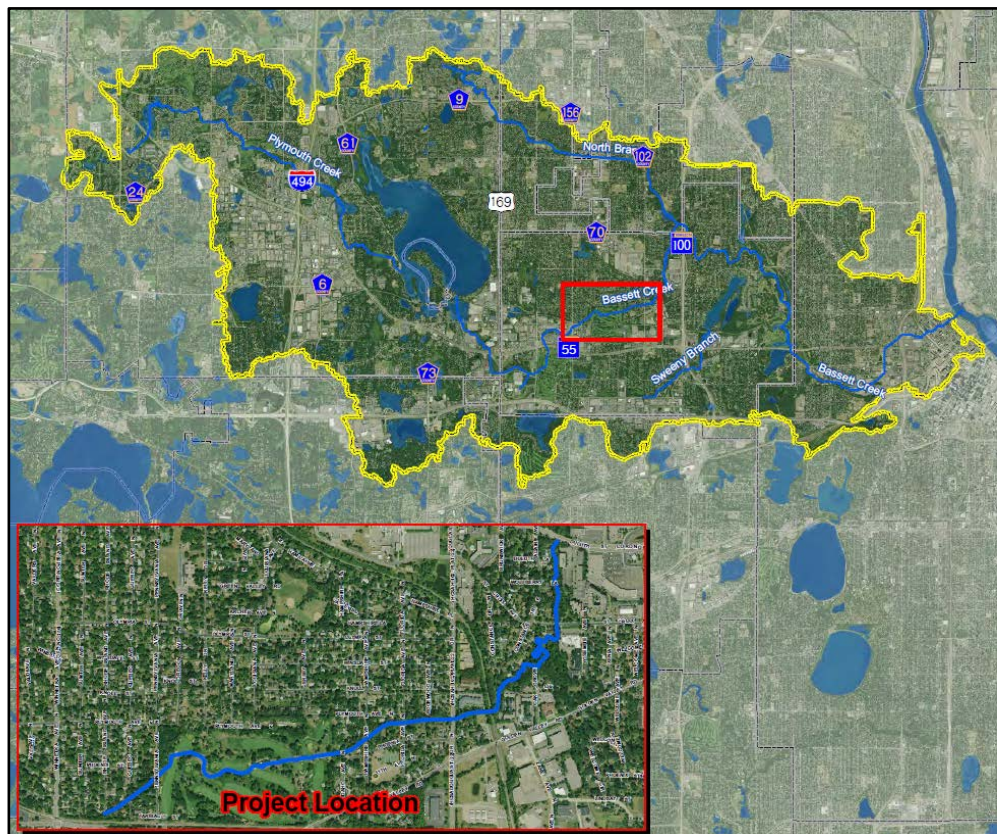
## I. Project Overview

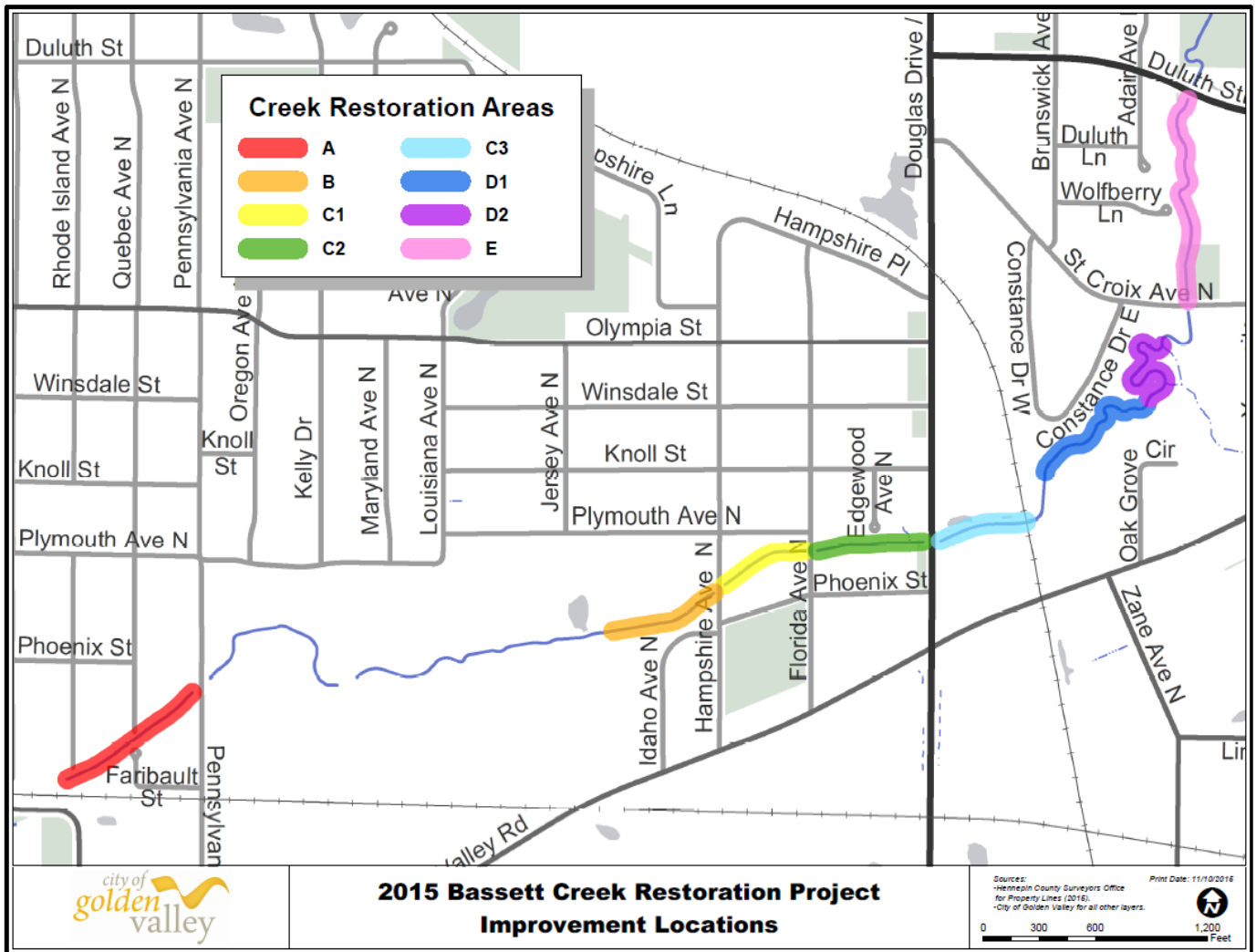
This project in the City of Golden Valley restored streambanks along the 9,500-foot reach of the Main Stem of Bassett Creek from the intersection of 10th Ave. N. and Rhode Island Ave. N. to Duluth St. Areas of bank erosion and bank failure were stabilized and re-vegetated to improve water quality and habitat. Restoration techniques included a combination of bioengineering methods using vegetative materials, and structural methods including rock and other non-vegetative materials.

## II. Project Area

The reach identified for this project extended approximately 9,500 feet from 10<sup>th</sup> Avenue and Rhode Island Avenue at the upstream end to Duluth Street at the downstream end, just east of Adair Avenue. This project tied into a previous streambank restoration project completed by the BCWMC in 2012. The stream is relatively shallow in most places except for occasional deep pools.

With the exception of a reach of the within Area D (see map on following page), virtually all sections of the Main stem of Bassett Creek reach were converted into ditches in the 1900s through the 1920s. The riparian vegetation varied considerably depending on adjacent land use. Much of the reach contained unmanaged woody vegetation. Some banks within golf course areas were largely free of woody vegetation and the banks were mostly grasses dominated by reed canary grass. Some banks within the parks and the golf course had turf grass to the top of the bank.





### III. Project Description and Outcomes

The project reduces the total phosphorous load entering the creek by an estimated 60-100 pounds per year and the total suspended sediment load by an estimated 140,000-200,000 pounds per year. There were several goals associated with this project including:

- Removal of hazard and invasive trees and vegetation along the corridor
- Reshaping and stabilization of eroded stream banks
- Installation of a variety of stream stabilization measures and flow diversion methods to address erosion problems, including Bio-logs, boulders, riprap, vegetated bench, live stakes and fascines, and native vegetation and plantings
- Repair of storm sewer outfalls and other deteriorated infrastructure along the creek
- Establishment of native vegetation, trees, and shrubs along the creek
- Removal of miscellaneous debris from within the creek

The final project design included a combination of bioengineering techniques that rely primarily on vegetation, and their associated root structures to stabilize the creek bank; and a more structural approach using rock, or other non-vegetative materials to stabilize eroding shorelines. The selection of the best option for a given stream reach was based on a number of factors including the velocity of flow in channel reach, slope of creek bank, presence and location of existing infrastructure, exposure of creek bank to sunlight, ability to obtain access for installation and future maintenance, location of significant hardwood trees to be preserved, and property owners' preferences for type of treatment. With much of the project being located on private property, the selected techniques needed the support of property owners. The final design was a collaborative effort between the BCWMC, City and property owners.

### IV. Timeline and Key Documents

The 2004 Bassett Creek Watershed Management Plan included goals and policies related to the implementation and funding of channel restoration projects, the Commission's direction related to design of these restoration projects, and the benefits of stream restoration. In January 2007 the BCWMC's Technical Advisory Committee recommended that the Commission add stream channel restoration projects to the Commission's 10-Year Capital Improvements Program (CIP). Key dates for this project include:

- February 2014: BCWMC reviews the draft feasibility study for the project, prepared by WSB, Inc.
- April 2014: Golden Valley holds a public open house on the project
- June 2014: BCWMC amends its 2004 Watershed Management Plan to include the Bassett Creek Main Stem Restoration Project: 10th Avenue to Duluth Street (2015CR) in its Capital Improvement Program
- June 2014: BCWMC approves the [feasibility report](#)
- October 2014: BCWMC holds a public hearing and officially [orders the project](#) and enters an agreement with Golden Valley to design and construct the project
- March 2015: BCWMC approves [50% design plans](#) with BCWMC [engineer comments](#)
- June 2015: BCWMC approves [90% design plans](#) with BCWMC [engineer comments](#)

Project construction began in the winter of 2015. The project was constructed in two phases, each under a separate contract. Phase One was construction including stream bank shaping, placement of field stone rock and 12-inch bio-logs, and repair of storm sewer outlets. Phase one was completed in 2016. Phase Two began



immediately following construction and included the establishment of native vegetation along the stream. Phase two continued through the growing season of 2018.



## **V. Project Budget and Funding**

- Total project budget = \$1,503,000 including feasibility study, design, construction, vegetation management, BCWMC engineering review, BCWMC legal and administrative costs
- Reimbursements to Golden Valley
  - Reimbursement 1 (July 2015) \$61,993.25
  - Reimbursement 2 (December 2016) \$841,405.15
  - Reimbursement 3 (August 2017) \$57,299.09
  - Reimbursement 4 (March 2019) \$114,601.05
- BCWMC Expenses
  - Engineering, legal, administration \$43,048.75
- Total expenses and remaining funds
  - Total expenses \$1,118,347.29
  - Remaining funds (to be added to closed project account) \$384,652.71

## **VI. Lessons Learned**

Separating the project into two contracts worked very well. Retaining a native vegetation contractor to complete the vegetation establishment, monitoring, and management over three growing seasons was instrumental to the success of this project which relied heavily on vegetative techniques. Ultimately this specialization led to reduced cost (project significantly under budget), more direct control of the vegetation establishment process, and better performance and results.

Working directly with up to 70 property owners proved to be challenging and time-consuming for city staff, but was critical to the success of the project. Temporary access and construction permits were needed from all owners in order to complete the project. In addition, staff needed the consent and support of owners in order to select techniques and establish native buffers along the stream (in most cases converting manicured turf to native vegetation). Only two owners denied access and one opted back in after the project began. This project was very different than projects located mostly or entirely within a park or public property.

## **VII. Maintenance**

The maintenance of this project depends on the location of the restoration technique. Improvements located on private property are the responsibility of each property owner. Letters were sent to owners at the end of the project providing information on how to maintain their buffers and streambanks.

Properties owned and managed by the City are the City's responsibility to maintain. The City's routine maintenance includes annual inspection and inspection following large precipitation events. It also includes ongoing monitoring and integrated plant management by a native vegetation contractor. It is anticipated this annual contract will continue into the foreseeable future. If repair of any streambanks in public areas is required in the future, the City will assess the situation and determine the appropriate technique or solution, and will involve the BCWMC if necessary.

## **VIII. Closing Notes**

It should be noted that data from the Watershed Outlet Monitoring Program (WOMP) monitoring station at the downstream end of Bassett Creek indicate that the water quality of the creek has significantly improved over between 2001 and 2012. Aside from chloride levels, pollutants including nutrients and sediment are steadily decreasing. This can be attributed to projects such as this which reduce erosion along the creek and improve streambank stability. More information is included in a [Met Council report from 2014](#).