

B A S I C
Bifrost Agricultural Sustainability Community
Service Cooperative Inc.
FINAL REPORT to Growing Forward 2
March 31, 2018

BACKGROUND & OBJECTIVES:

In the Spring of 2016, BASIC received a grant of \$1,002,052 from the Canada/Manitoba Growing Forward 2 Growing Actions Program with objectives to (as stated in Schedule “A” of the Contribution Agreement):

1. Develop and execute a three-year plan to rehabilitate 220 miles of municipal drainage infrastructure serving agricultural land in the RM of Bifrost (1/2 of the estimated 440 miles).
2. Leverage producer contributions to attract provincial and federal infrastructure funding to rehabilitate provincial drains and highway ditches as well as to expand (not simply rehabilitate) municipal drains that will be required to carry more water due to improvements in feeder drains.
3. Test innovative cropping methods (eg. Raised bed, tile drainage and other methods to manage excess moisture on field) for potential adoption by producers in the R.M. of Bifrost (and applicable elsewhere where chronic excess moisture is an issue).

In addition to these three objectives, “Producers in the RM of Bifrost-Riverton have made a request to the RM of Bifrost-Riverton to develop a Special Services District to borrow approximately \$4 million to partially fund drainage and other water management improvements in Bifrost-Riverton (rehabilitation of municipal and provincial drains).”

PROJECT ACTIVITIES

The activities undertaken by BASIC in order to achieve these goals are summarized in this report under the following broad headings.

- I. OPERATING STRUCTURE
- II. WATER MANAGEMENT
- III. CROP TRIALS/AGRONOMY
- IV. ENVIRONMENTAL STEWARDSHIP
- V. COMMUNICATION/EDUCATION
- VI. SPECIAL SERVICES DISTRICT BORROWING
- VII. FINANCE
- VIII. Equipment

I. OPERATING STRUCTURE -

On March 6, 2012, BASIC was certified as a “Community Service Cooperative” and on December 9, 2015 it was amended to become a “Multi-Stakeholder Community Service Cooperative” when the cooperative stakeholder group was expanded from “Bifrost Farmers Group” to include the “Municipality of Bifrost Riverton”. Membership as at June 20, 2017 totalled 194. BASIC By-laws are available on request.

A Board of Directors of eleven Bifrost-Riverton farmers is elected according to By-law provisions at the Cooperative’s Annual General Meeting. Two representatives of the Municipality are appointed by the Council of the Municipality of Bifrost- Riverton. The Manager of East Interlake Conservation District sits on the Board as an ex-officio, non voting member as do BASIC staff members.

The Board has established six committees to undertake BASIC’s work – i.e. Water Management, Stewardship, Agronomy/Crop Trials, Human Resources, Communications and Funding. Schedule 1 outlines BASIC’s organizational Structure. Committee terms of reference are included as Schedules 2 through 7. An Executive Committee handles BASIC’s work on behalf of the Board between meetings. Minutes of all meetings are kept and are available on request.

BASIC staff include a full-time Project Manager, a .6 full-time-equivalent Project Administrator and a part-time Assistant Project Manager/Drainage Consultant. A Financial Administrator (the Bifrost-Riverton CAO) who provides BASIC financial management is provided as a “gift-in-kind” by the Municipality. Staff job descriptions are included as Schedules 8, 9 and 10.

II. WATER MANAGEMENT COMMITTEE ACTIVITIES -

Reporting to the BASIC Board, the Water Management Committee works with the RM’s newly formed East and West Drainage committees in order to design and assist in the implementation of a plan to rehabilitate municipal drainage infrastructure serving agricultural land in the Municipality of Bifrost-Riverton. BASIC’s goal is, after an extreme rainfall event, to see the excess water drained off fields within 36 to 48 hours. In addition to BASIC Directors and R.M. representatives, Committee membership includes BASIC Directors and Municipal representatives well as representatives of Manitoba Infrastructure, Manitoba Agriculture, East Interlake Conservation District, and BASIC’s Project Manager and Assistant Project Manager.

Project activities undertaken included:

- Discussion of drainage infrastructure by East and West drainage committees.
- Scheduling and executing of three-shot (road, ditch, prairie) surveys of problem areas and engineered feasibility studies / drawings when construction occurs through provincial road.
- Design of survey profiles with grade line and culverts.
- Submission of designed profile to Sustainable Development for drainage license.
- Discussion / land owner consent forms regarding the proposed works.
- Creation of tender package and bid sheets.
- Advertising of tender and receipt of bids.
- Tender opening and awarding.
- Supervision / guidance of construction / rehabilitation of drains .

III. AGRONOMY/CROP TRIALS ACTIVITIES –

Reporting to the BASIC Board, the Agronomy/Crop Trials Committee concerns itself with testing innovative cropping methods and different crops and varieties in conditions of excess and extreme moisture. After a number of years of excess moisture, it was noted that some varieties performed better than others and the Committee's goal is to rate each variety based on its performance. BASIC is partnering with Prairies East Sustainable Agriculture Initiative (PESAI) whose research station is just west of Arborg, to undertake the trials in conjunction with various commodity groups and their Agronomists. The Committee works to ensure that resources are in place to support the testing and research, assists researchers by helping to identify issues to study and provides other advice and assistance as required.

IV. STEWARDSHIP ACTIVITIES –

The Stewardship Committee is concerned with the responsible use and protection of the natural environment through conservation and sustainable practices. Its goal is to ensure that all activities undertaken by BASIC are designed to maintain a healthy ecosystem and do as little as possible to negatively impact the world and our community. It will encourage land practices that improve agricultural practices and water quality, reduce soil erosion and foster the maintenance of a healthy farmland wildlife habitat.

One major undertaking of the Stewardship Committee is to partner with the East Interlake Conservation District to establish an “Erosion Control Demonstration Project” which involves testing and demonstrating various methods of controlling erosion on recently rehabilitated drainage ditches.

A second major undertaking relates to surveying and rehabilitating fish habitats in Bifrost-Riverton rivers and streams. The committee will oversee the work of consultants contracted for an initial survey to be done in 2018 and the subsequent rehabilitation required as identified in the survey.

V. COMMUNICATIONS/EDUCATION ACTIVITIES –

This Committee facilitates communication and exchange with members, agricultural partners, government and other stakeholders. It develops key messages, media releases and other communications vehicles in order to communicate BASIC priorities and activities.

VI. HUMAN RESOURCES ACTIVITIES –

Oversees all BASIC human resources aspects including but not limited to, making recommendations regarding hiring and termination, salary levels, benefits, placing advertisements, conducting interviews and performance reviews and preparing employment contracts.

VII. SPECIAL SERVICES DISTRICT BORROWING –

In July of 2015, 181 Bifrost-Riverton ratepayers signed and submitted a petition to the Municipality requesting that a \$4 million reserve be established “to enable a comprehensive water management project for the R.M.....”. A 20-year debenture would be issued to be “serviced by a special levy on all farmland within Bifrost”.

The first Municipal public hearing to consider the borrowing was held on December 7th, 2015. There were 74 individual objections representing 161 individual rolls out of a total of 3,118 or 5.16%

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A further hearing was required. It took place on Tuesday, June 7, 2016 and was adjourned by the Municipal Board due to the requirement for by-law revisions.

At the hearing held on November 16, 2017 the Municipal Board posed several questions and a further hearing was scheduled for May 3, 2018 in order to address the answers to the questions. It is hoped that the by-law will be approved once these answers are presented.

DELIVERABLES

I. WATER MANAGEMENT DELIVERABLES

- 414 miles of surveys
- Feasibility drainage studies of Finns, South Arborg By-Pass, Progress Drain
- Engineered construction drawings of South Arborg By-Pass, Progress Drain Pumping station.
- Online map hosting of survey profiles for the use of farmers, planners and the public.
- Online map hosting of LiDAR data reduction for the use of farmers, planners and the public.
- Formation of long-term regional drainage committees and relationships with Province, R.M. and public.
- Identification and mapping of “mini-watersheds” within the main watersheds leading to a better understanding of how water flows throughout the Municipality.
- Approximately 68 miles of drainage rehabilitation paid for from R.M.’s drainage budget.
- A “library” of shovel ready projects - More than 50 miles have designs, surveys and license approvals all completed. More than 250 miles have designs and surveys completed with licenses applied for.

II. AGRONOMY DELIVERABLES –

The BASIC Agronomy Committee worked with the staff of PESAI to provide assistance, both in terms of advice and direction and resources regarding: designing an irrigation system that was sufficient to deliver excess moisture to crops tested in 2016, 2017 and future crop trials; providing advice and resources for irrigation equipment; liaison with the Municipality regarding equipment installation; determining which crops and varieties to be included in trials; providing contact advice and liaising with commodity groups and their Agronomists for

their assistance and advice. Crops tested in 2016 included Canola and Flax. In 2017 – Canola, Flax, Barley and Sunflower. PESAI intends to continue trials in 2018 of Peas, Barley, Canola and either Flax or Sunflower, depending on space available. Summaries of the complete results of the 2016 and 2017 trials are included as Schedules 11 through 15. The Committee will also work to ensure that crop trial results are made available to farmers.

III STEWARDSHIP DELIVERABLES –

Plans are finalized for an Erosion Control Demonstration Project featuring six plots using six different varieties of grass to be planted for erosion control. The project is being done in partnership with East Interlake Conservation District. The demonstration site will be located on Vidir Road on the site of the rehabilitation of the Vidir Drain that was concluded in fall of 2017. A supply of six types of grass (Native Grass Mix, Natural Fowl Bluegrass, Big Bluestem and Western Wheatgrass and two different types of Ditch Mix), have been donated by Northstar Seed, BrettYoung, Manitoba Infrastructure and Interlake Forage Seeds for sowing on the plots which will be evaluated to determine which provides the best erosion control. Results will be made available to producers and the Municipality so they can implement the most effective erosion control methods. The members of the Stewardship Committee have volunteered to plant the plots in June of 2018 using the seeder and quad purchased through the BASIC project. Signs describing grass types, donors and acknowledging Growing Forward 2 will be placed adjacent to the Demonstration site.

The Committee also received a donation of 5,000 lbs. of grass seed (value \$37,500) to be used to provide erosion control for all drains already rehabilitated and those that will be rehabilitated in coming years. The same seeder and quad will be used for seeding.

The Committee has also reached agreement with ECBVerdyol (a local erosion control company) to provide erosion control blankets at no charge to farmers for their on-farm drainage.

The Committee is working with the Municipality to educate farmers on the need for effective erosion control, the method of obtaining water licenses, the provisions of the erosion control blanket project and details on the option which is available for farmers to rehabilitate on their own the Municipal drains adjacent to their property.

IV. COMMUNICATIONS – Communications Deliverables include:

- Full-page articles in the Express Weekly News as follows:
 1. April 6, 2017 – “BASIC addressing drainage infrastructure and excess moisture to improve farmers’ futures” and “PESAI Crop Trials”. (Schedule 16)
 2. June 22, 2017 – “BASIC goes the extra mile with erosion-control experiment” and “Bifrost-Riverton farmers take ditching into their own hands”. (Schedule 17)
 3. November 9, 2017 – “BASIC Highlights” . (Schedule 18)
- Interlake Enterprise – to be published on April 11, 2018 - Summary of BASIC accomplishments.
- July 12, 2017 – Express Weekly News advertisement re Annual General Meeting.
- Website – basic-bifrostriverton.com

V. SPECIAL SERVICES DISTRICT BORROWING DELIVERABLES -

Having an amount (\$4 million proposed) approved for borrowing will enable BASIC/Bifrost-Riverton to borrow money on a one-to-one basis to match drainage rehabilitation grants received. This leverage will not only help to attract grants but will also double the impact and reach of external dollars received, thereby significantly increasing the amounts invested in water management in the Municipality and at the same time reducing the contribution required by farm land owners through taxes.

IMPACT/CONCLUSIONS

I. WATER MANAGEMENT IMPACTS

The project has been vital in establishing a more strategic and logistical watershed approach as opposed to the previous separate budget per separate ward system. Projects are prioritized on a downstream to upstream basis with those having maximum economic impact / drainage catchment area given the highest priority. This approach makes all counsellors as well as citizen reps on committees more aware of the watershed drainage issues in the municipality compared to the old system. It also leaves in place a multi-year long term plan which includes the identification of many “shovel ready” miles which are still to be rehabilitated.

Water Management Challenges:

The condition of third-order provincial drains which are the outlet for many of the miles of municipal drains, is a challenge when selecting miles to be rehabilitated. Many of the third-order drains in the Municipality of Bifrost-Riverton require redesign / reconstruction to accommodate municipal drain improvements. Drains that were originally engineered decades ago were designed with the land use practices that were in effect at the time and do not reflect the high value crops that are grown in the area today. Higher volumes of water are added to third order drains much more quickly than in the past. This water often ends up on downstream farmland near third-order drains as they cannot handle the volume. When third order drains are not working effectively, improvements made to the municipal drains that run into them are wasted as water backs-up and flooding issues are merely moved downstream.

The average time required to receive a drainage license is about six months, making planning and execution a challenge. This created a problem for BASIC, particularly in the early stages of the program.

The late start of the BASIC project as well as the fact that no work can be done before June 15th of each year due to fish habitat regulations, have hampered BASIC's ability to make as much progress as was anticipated. There are drains that could be worked on as they do not include fish habitats, however the regulations prohibit this work.

Land owner cooperation is another challenge to the project. When a mile is tendered for rehabilitation, excavated material when removed from the drains, must be placed on the adjacent fields and spread. In some cases, land owners are not receptive to this practice or expect special treatment with the RM paying to haul material away. This inflates the cost of a project to the point where the cost to benefit ratio is simply too high. This especially poses a problem if the uncooperative landowner is along an important downstream outlet, affecting all those farmers up-stream by refusing to let the project go ahead.

II. AGRONOMY IMPACTS –

In an environment where excess moisture is more often the norm, it is extremely valuable for farmers to have information on what crops and varieties flourish under excess or extreme water conditions. It is also important to measure the impact of flooding to determine the number of days of flooding that a crop/variety will survive before damage

occurs. In addition, the impact of tile drainage on crops experiencing high moisture, whether tile drainage is effective in the clay soils in our region and if so, what distance the tiles should be from one another are all important answers for farmers to have if they are contemplating using tile drainage.

III. STEWARDSHIP IMPACTS –

Effective drainage and erosion control are important, not only to the success of crops but also to reducing the escape of nutrients into the rivers and lakes. By addressing on-farm erosion control, farmers can prevent the loss of soil into drains. The soil that runs-off can further clog ditches and drains, requiring increased maintenance to prevent flooding. In addition, when water is allowed to lie on fields for extended periods of time, nutrients can be leached out of the soil and, instead of nourishing the plant as intended, nutrients get washed out and end up in Lake Winnipeg and the crop dies. Effective erosion control methods in drains prevents phosphorous and other nutrients from entering lakes and rivers, it stabilizes banks so that they are easier to maintain and it provides cover for wildlife and shade for fish.

IV. COMMUNICATIONS/EDUCATION IMPACTS –

Articles, the website and information meetings are designed to inform farmers about the activities of BASIC in order to invite their support of BASIC activities and to educate them about improved farming practices.

V. SPECIAL SERVICES DISTRICT BORROWING IMPACTS -

Having the ability to borrow against the proposed \$4 million levy will allow the Municipality to attract external grants to be used to rehabilitate Municipal and Provincial drains in order to implement a cohesive water management plan at a fraction of the cost to farm land owners.

VI. FINANCES - the financial information is included as follows:

- Schedule 19, - Growing Actions Program Schedule 19
- Schedule 20 December 1/17 to March 31/18 Expenses
- Schedule 21 R.M. Drainage Improvement Costs
- Schedule 22 Gifts in Kind Summary

VII. EQUIPMENT - equipment purchased through GF2 is listed in Schedule 23.

VIII. ACKNOWLEDGEMENTS - The BASIC project was made possible by funding from the Governments of Manitoba and Canada through the Growing Forward 2, Growing Actions Program. Significant support was also received from the volunteer Directors of the BASIC Board, the Municipality of Bifrost-Riverton, the East Interlake Conservation District and from countless community members and organizations through their donations of time, advice and materials.

BASIC – GF 2 Final Report

List of Schedules

<u>Schedule No.</u>	<u>Description</u>
1.	BASIC Organizational Chart
2.	Water Management Committee Terms of Reference
3.	Agronomy/Crop Trials Committee Terms of Reference
4.	Stewardship Committee Terms of Reference
5.	Communications Committee Terms of Reference
6.	Human Resources Committee Terms of Reference
7.	Executive Committee Terms of Reference
8.	Job Description – Project Manager
9.	Job Description – Project Administrator
10.	Job Description – Financial Manager
11.	2016 Canola Crop Trial
12.	2016 Flax Crop Trial
13.	2017 Canola Crop Trial
14.	2017 Flax Crop Trial
15.	2017 Sunflower Crop Trial
16.	April 6, 2017 Express Weekly News Article
17.	June 22, 2017 Express Weekly News Article
18.	November 9, 2017 Express Weekly News Article
18. A.	April 11, 2018 Interlake Enterprise News Article
19.	GF2 Final Financial Report – March 31, 2018
20.	Expenses December 1, 2017 to March 31, 2018
21.	R.M. Drainage Improvement Costs
22.	Gifts in Kind Summary
23.	Listing of Equipment purchased through GF2.