

SUSTAINABILITY INITIATIVES BY STUDENT ORGANIZATIONS FUNDING PROPOSAL

Name of Student Organization	AWRA, Stroubles Creek Restoration Initiative
Contact/Responsible Person	Maria Saxton
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Part II - Project Cost Information

Estimate Cost of this Proposal	7293.00	See Part III.C
Estimated Savings –	3863.00	See Part III.D
Net Cost of this Proposal	3430.00	

Part III - Supporting Information

A. Please describe your sustainability initiative and attach supporting documentation.

This proposal seeks funding for the fencing phase of a riparian restoration project along a section Stroubles Creek.

Funding is needed for 980' of livestock exclusion fencing on Stroubles Creek near the VT Beef Center. The proposed fence would be installed 25 feet further away from the stream from the existing fence. This would allow for opportunities for wetland and riparian habitat restoration through the planting of native vegetation.

This section of Stroubles Creek is listed as an impaired waterway by the VaDEQ. The VaDEQ identified 10 sources causing the impairment. The following are the top 4 sources from the list, all of which will be improved following the completion of this project:

1. Lack of streamside forest
2. Livestock access to the streams
3. Agricultural runoff
4. Increasing development and peak flows from stormwater runoff



Figure 1: Overview of the restoration project site on Stroubles Creek near the VT Beef Center. The yellow line depicts the location of the proposed livestock fencing.



Figure 2: Water from Stroubles Creek overflowing its banks into the pasture following a storm event. The proposed fence would be installed 25-30 feet further away from the existing fence shown in the picture and beyond the extent of flood stage water levels.



Figure 3 – Cattle congregating nearby a recently planted red maple, planted by the Stroubles Creek Restoration Initiative. Where the cattle are standing in this picture is within the boundaries of the extent of the water in figure 2. Several other areas along this 980' reach of fencing are currently eroding into the stream from streambank erosion at stream bends. This is giving cattle access to the stream in those areas.

B. How does this initiative help to achieve the goals of the Virginia Tech Climate Action Commitment and Sustainability Plan?

1. Reflects positively on Virginia Tech's efforts to have Stroubles Creek removed from the state's impaired waters list while further enhancing our reputation of being leaders in sustainability.
2. Riparian vegetation improves water quality by:
 - Absorbing stormwater runoff from impervious surfaces. According to the National Tree Benefits Calculator, upon reaching 10 inches in diameter (approximately 30 years in age), a single silver maple (*Acer saccharum*) will result in 917 gallons of stormwater being absorbed. Silver maples are one of the species to be planted in the vegetation restoration phase of the project.
 - Stabilizing soil to prevent stream bank erosion and sedimentation in the water
 - Mitigating pollutants from Virginia Tech agriculture fields and livestock, golf courses, and runoff from impervious surfaces - pollutants include nitrogen, phosphorus, heavy metals, pesticides, oil and grease, fecal coliforms, etc.
 - Providing shade over the water which keeps water temperatures low and oxygen levels high for aquatic species
3. Riparian areas benefit wildlife and enhance species diversity by:
 - Connecting fragmented habitats for migratory birds and other wildlife, increasing overall species habitat and resiliency to disturbance

- Providing habitat and forage for wildlife
- Providing shade and habitat for fish species and other aquatic organisms
- Increasing biodiversity of flora and fauna on the Virginia Tech campus
- Native vegetation will reduce potential areas for invasive vegetation to become established. Invasive vegetation threatens biodiversity and it is difficult and costly to control its spread

4. Increases carbon sequestration with increased vegetation biomass. According to the National Tree Benefits Calculator, upon reaching 10 inches in diameter (approximately 30 years in age), a single silver maple will result in 494 pounds of atmospheric CO2 absorbed annually. Silver maples are one of the species to be planted in the vegetation restoration phase of the project.

C. What is the cost of your proposal? Please describe in adequate detail the basis for your cost estimate.

\$2,793 - Planting - 294 hardwood bareroot with treeshelter, an oak stake, a VisPore mat, and 4 sod staples to be installed with each of the hardwood seedlings planted (See attached document – *Stroubles Beef Farm Agreement*)

+

\$4,500 - 980' of tightlock woven wire fence (See attached document – *Easter Fencing Estimate*)

= \$7,293 – Total Estimated cost

D. Will your proposal produce cost savings for the University? If so, how much? Please describe in adequate detail the basis for your savings estimate.

\$ 1,070 – Fencing labor cost savings. The Virginia Tech Beef Center (CALs) will cover the labor costs of fence installation if the materials are paid for

+

\$1,465 –VT Department of Site & Infrastructure Development will pay for the planting materials

+

\$1,328 - The labor costs for the tree plantings and vegetation restoration phase will be provided by the Stroubles Creek Restoration Initiative and AWRA

= \$3,863 savings

= \$3,430 net cost

E. Is this funding request an Ongoing or One-Time change (please check one)?

One-time

Ongoing

F. Is funding available for this request from another source? If yes, describe the funding (source, amount, etc.)

Funding is not available for fencing materials. *The success of this project depends on securing this funding for fencing materials.* If no funding is secured for the fencing materials, all other funding will be lost for the project.

Funding which has already been secured for other phases of this project include:

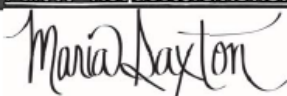

- The labor costs for fence installation phase will be provided by the Virginia Tech Beef Center (CALs) - \$ 1,070
- The labor costs for the tree plantings and vegetation restoration phase will be provided by the Stroubles Creek Restoration Initiative and AWRA - \$1,328
- The materials cost for the tree plantings and vegetation restoration phase will be provided by the VT Department of Site & Infrastructure Development - \$1,465

G. Conclusion

This proposal seeks to demonstrate Virginia Tech’s leadership in sustainability by protecting and restoring the riparian areas along Stroubles Creek and its tributaries through coordinated restoration efforts. Efforts and costs on behalf of Virginia Tech are minimal, yet the benefits are abundant and will increase over time. Restoring riparian areas and wetlands are the most cost effective and reliable solutions to improving water quality and managing storm water runoff and having the stream removed from the VaDEQ’s list of impaired waterways.

There are few areas of greater priority for conservation than riparian areas along waterways. Clean water is the scarcest natural resource we have on our planet. In the name of *Ut Prosim* is it our responsibility to take every means necessary to protect this precious resource for present and future generations. We ask for your help and join us in a collaborative effort to demonstrate Virginia Tech’s continued commitment to environmental, economic, and social sustainability.

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Part IV- Requestors/Reviewers	
 Prepared By (Name of Contact for Student Organization)	11/18/16 Date
W.C. Hession  Reviewed By (Name of Appropriate University Official)	11/18/16 Date
Denny Cochrane	12/1/16
Reviewed By (Name of Office of Sustainability Representative)	Date