



Schoharie River Center
2047 Burtonville Road
Esperance, NY 12066

July 27, 2009

Michelle Yost
GCSWCD Watershed Program,
PO Box 996,
Tannersville, NY 12485

Dear Ms Yost,

The Schoharie River Center, Inc, is pleased to provide the GCSWCD Watershed Program with our proposal for the Manorkill Environmental Study Team Program to be operated through funding from the Schoharie Watershed Stream Management Plan Implementation Grant, along with matching funding through the Schoharie County Youth Bureau and the United Way of the Greater Capital Region. Although this is our first time applying for funding through your organization, the Schoharie River Center, Inc has been successfully operating innovative and unique community based environmental education and cultural arts programs in the Schoharie watershed since 2000.

Our award winning Environmental Study Team program represents a new type of community and youth development programming that successfully engages a variety of youth (and parents) in becoming knowledgeable and concerned about their local environment and communities. Our EST programs are funded through a unique combination of sources including NYS Youth Development Funds, Preventive Services, DEC funding, and through outside foundations. We are excited to have the opportunity to work with Schoharie County and the Town of Conesville on this project.

Please feel free to contact me with any questions you may have regarding our grant application.

Sincerely

John McKeeby, MS
Executive Director
Schoharie River Center, Inc.

Schoharie Watershed Stream Management Plan Implementation

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Application deadlines February 1st and August 1st

Submit two copies of completed application to GCSWCD Watershed Program, PO Box 996, Tannersville, NY 12485 (see application guidelines for contact info, and be sure to sign page 2).

Cover Page

1. Project Title : The Manorkill Environmental Study Team - Stream Management Plan Implementation Program

2. Project Contact Person (if different from applicant) Telephone number / fax
John McKeeby, Executive Director, Schoharie River Center.
Phone 518-875-6889

Applicant (please specify if individual property owner, organization (type) or municipality and provide tax ID number if municipality or organization)

Applicant: Schoharie River Center, Inc. , 501 C3 not for profit organization,
EIN #: 14-1818532

Address: 2047 Burtonsville Road
Esperance, New York, 12066

Telephone # Fax # E-mail : Phone: 518-875-6889,
email: schoharierivercenter@juno.com
Website: www.schoharierivercenter.org

Stream Management Plan Information (see application guide for more info)

3. Did the Municipality in which project is proposed adopt a Stream Management Plan?
Yes X No _____

4. What category does the project address below (check all that apply)? Please see attached guidance document for examples of each.

1. Education/Outreach X
2. Highway Infrastructure Improvement _____
3. Landowner Stream Assistance X
4. Stormwater Implementation and/or Critical Area Seeding _____
5. Recreation-Based Opportunities/Habitat Enhancements X
6. Planning and Assessment X

5. On a scale of 1 -10 (1 being minimal, 10 highly significant), how would you rate the project's value in fulfilling the Stream Stewardship Principles developed for the Catskills (see application guidelines)?

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Rating as a 10: The Manorkill EST program supports and promotes all stream stewardship principles listed in the application guidelines. The Environmental Study Team's focus is to assist and encourage youth members (ages 13-18), and their families, to be aware of and active in the monitoring and improvement of their local environment through participating in ongoing community based, professionally supervised water quality & bio-monitoring research projects, organized stream bank clean-ups and community education activities. The activities of the Environmental Study Team offer the youth members an opportunity to participate with both peers and adults in positive, constructive, task oriented projects which will both enhance the quality of life of the community and reinforce goal directed, personally responsible behavior among environmental study team members. Stewardship of our local environment is a key value promoted throughout all the activities and programs of EST.

6. In which Municipality (village/town) is the project located:

The project will be based in Conesville and the surrounding area (Prattsville, Gilboa, etc) and focus on the Manorkill watershed including all tributaries.

7. Amount requested: \$ 5000.00 (one year duration)

Preliminary Budget

Total Amount requested: \$5,000.00

Breakdown of costs.

1. Staffing: Schoharie River Center, Inc.

Environmental Study Team Program Management, Training, Supervision, and Coordination Activities. These activities will be carried out by SRC Executive Director who will act as EST program director, and by an aquatic biologist (Watershed Assessment Associates) who will provide specific training in the areas of macro-invertebrate taxonomy and analysis and oversee quality assurance for all documented research.

15 hours per month X12 months = 180 hours X \$56/hour = \$10,000

	Breakdown
WAA Contracted taxonomy workshops and professional stream assessment with written report from WAA	(\$2500)
SRC Program Director - program operations, training, supervision	(\$7500)

2. Equipment and supplies for EST water quality testing activities

Water Chemistry testing equipment	
Hach 890 colorimeter	\$950
(Nitrate-Nitrogen, Turbidity, Orthophosphates)	
Lamotte O2 testing kit	\$70
LaMotte Alkalinity Kit	\$70
pH and Conductivity meters	\$250
TenSette Pipette with tips	\$180
Chemical reagents and glassware	\$300

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Hard Shell Field case for Tests	\$100
Macro-invertebrate equipment	
Waders 4 pair	\$450
Kick Nets – 2	\$250
Sieve	\$75
Trays 2	\$50
Dissecting scopes (2)	\$600
Other supplies (forceps, collection bottles etc)	\$200
Bacteria kits	\$150
3. Program Operation & Transportation Cost	
1. Office Supplies / printing costs and educational material	\$500
2. Food for EST Activities	\$500
3. Transportation Reimbursement Costs	<u>\$500</u>
(For trips to monitoring sites and training field trips)	
Total costs	\$15,000

8. Amount of shared funding or in-kind contribution. Note leveraging additional funds, or in-kind contributions (labor, equipment, materials) will rank higher.

The program will leverage funding from the Schoharie County Youth Bureau's Youth Development and Delinquency Prevention Funding (YDDP) (\$3227.00) secured for 2009, as well as Community Impact Investment Funding from the United Way of the Greater Capital Region (\$2000) secured for 2009 – 2010. We will also pursue other funding opportunities as they are identified.

In-Kind contribution of equipment and chemical reagents from WAA and the SRC total - \$ 3000
Fund raising by SRC total - \$2000.00

9. Estimated Dates for Starting and Completing the Project :

The project will begin in August 2009 and run on an on-going basis, year round as long as funding continues.

Is this a multi-year project? Yes/No – Explain

Yes, The Environmental Study Team program is an ongoing youth development program of the Schoharie River Center, with EST Chapters currently operating in Duanesburg, and Schenectady, New York. The Manor kill EST Stream Management Plan Implementation Program is a new EST chapter and the program is being developed and implemented jointly between the Schoharie River Center, Inc., the Town of Conesville, the Schoharie County Planning Department, SWCD, and the Schoharie County Youth Bureau. One of the goals for the Manor kill EST program is to work with the Town and community to conduct the ongoing implementation of the Manor kill stream management plan. This funding request is for one year (12 mos). The implementation of SMP however, is an on-going project, and we hope that the EST program will continue to receive funding into the future as the program succeeds in meeting it's goals.

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18) and their families will participate in the EST program during the initial year. Working in collaboration with the Town Board (Conesville and Gilboa) and other local stakeholder/residents (land owners, SWCD, the School and Schoharie County Planning Department), the EST will work to implement recommendations of Manor Kill stream management plan. In particular, water quality monitoring, riparian buffer plantings, outreach, recreation & habitat improvement projects; as well as to introduce students to the role of agencies, policies and processes in environmental protection at all levels.

Working to integrate the services and activities of the EST program into the curriculum of the Conesville – Gilboa School, we seek to create an integrated, community based service learning program that will support the academic goals of the school district and foster greater school success in the participating youth.

We anticipate the Manor kill EST program will continue year-round and work on an on-going basis year-to-year with the Town and the County to monitor, study, protect and improve the water-quality of the Manor kill watershed and promote the values and principles of stream stewardship within the local community. Meeting on a bi-weekly basis (8 - 12 hours per month) , a main focus for the EST program will be the identification, implementation and completion of specific activities, actions and goals outlined in the Manor kill Stream Management Plan, approved by the town of Conesville. Specifically the EST program will, over the life of the program, on an on-going basis will work to control invasive plants such as knotweed. Other EST activities planned throughout the year include studies of winter forest ecology, maple syrup making, competing in the regional Envirothon competition and at Hudson Basin River Watch's Clean Water Congress.

It is goal of this project to foster positive Youth Achievement and local community interest in the environmental conditions within the Manor kill watershed by encouraging, training and assisting the youth EST members to utilize, apply and integrate what they are learning at school in their academic studies to the environmental assessments, field research projects and community education activities of the Manor kill Environmental Study Team. The benefit of this is to encourage and foster greater academic interest and success in participating youth by allowing them to connect and apply this learning into the real life context of local environmental conservation projects. The EST Program is experientially based, and youth EST members learn specific skills, and develop and master abilities and behaviors that both assist them in completing the activities of the program and promote confidence and success in other life areas, stages and contexts. (School, Home, College, future vocation or career).

The skills EST members learn are those used in assessing and documenting the physical, chemical, and biological properties (macro-invertebrate and bacteria) of freshwater streams as outlined in the EPA Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers, and the EPA Volunteer Stream Monitoring: A Methods Manual. Working under the supervision of adult program staff trained in the fields of biology and field ecology, counseling, and education EST youth will learn the skills needed to analyze, interpret and present the findings of their research both in writing and orally to the public and to local, county, state and federal officials at public meetings and scientific conferences. The team's research will be published annually on the web at <http://www.hudsonbasin.org>, and on the Schoharie River Center's website at www.schoharierivercenter.org.

11. Describe how you will evaluate the short and long-term effectiveness of the proposed project:

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In the short term, we believe that the Manor Kill EST program will serve to jump start the local communities interest in and implementation of the Manor Kill stream management plan. The project staff (Program Director John McKeeby, and aquatic biologists from Watershed Assessment Associates, LLC of Schenectady) will work with the Town, local residents, and SWCD to coordinate and implement an action plan that the EST program(youth) can participate in to conduct bio-assessments of the watershed at targeted sites. EST program youth will receive training, technical assistance in the field, and supervision from the program staff (McKeeby and WAA) as the EST team conducts and documents in writing, their own assessments of local water quality within the watershed. All research by the youth will be conducted under the supervision of trained adults and reviewed by aquatic biologists from WAA to insure QAQC guidelines (HBRW Guidance Document) are followed.

Long term effectiveness will be evaluated based on the ability of the EST program to carry out number of specific projects outlined within the Manor Kill Stream Management Plan and approved by the Town, that the EST program is able to accomplish over the first, second, and third years of operations. It is anticipated that these projects will include at least two public education programs per year, 2 riparian zone reclamation and re-planting projects annually, and the teams annual participation in the Envirothon and Clean Water Congress Competitions. Opportunities for community education and outreach activities will be identified within the community and local area, and EST program youth and staff will provide hands-on learning programs for the community which focus on the science and need of watershed protection within the local area.

Long term effectiveness will also be measured through the on-going assessment of water quality at specific sites within the watershed by the EST team. These sites will be chosen based on their proximity to known areas of concern (point sources, and /erosion or riparian zone restoration projects), in order to assess any longer term effects (improvement or decrease) in water quality.

12. Describe how you will document the completion of the proposed project: __

The EST program director will provide a mid-year and annual report to the Town of Conesville and the Schoharie County Youth Bureau, and the United Way on the operations and progress of the EST program. This report will focus on the number of youth/families served, and the specific activities and projects accomplished by the project and the level of goal attainment achieved by the youth participating in the project.

Each youth will also keep their own field journal in which they will document their activities in the program. EST members will learn to utilize digital and video cameras in the documentation of the programs activities and will produce at least one power point and/or video presentation annually highlighting the work of the program within the Manor Kill watershed.

Additionally the team will complete and document in writing the findings of at least one rapid bio-assessment of the Manor Kill completed annually by the team, and present their findings at the Clean Water Congress and at a scheduled Town of Conesville Board meeting.

The Manor Kill EST programs research and photography will also be published on the internet on the Schoharie River Center website at www.schoharierivercenter.org.

13. Describe long term objectives, specific goals, the geographic area served, project

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schedule with start date & end date, major milestones such as design completion, bid dates, etc. Label - Page __ of __ pages (Max. 4 pages) List attachments

Long Term Objectives:

The long term objective of this proposal is the successful development of an ongoing, community based, grass roots, volunteer stream monitoring program which will focus on the protection and stewardship of Manorkill Watershed for years to come. Working in collaboration with key stakeholders within the Manorkill watershed, (town government, local residents, county agencies (Planning, SWCD), local schools, NYC DEP, etc., the Environmental Study Team project will be implemented by the Schoharie River Center¹, a 501(C)3 not for profit organization, which specializes in integrating experiential environmental education with community based youth development programming.

Specific Goals of the Project:

- The project will focus on protecting the Manor Kill utilizing a broad approach of professional/community /youth involvement in monitoring and documenting of water quality within the watershed.
- The EST program will work with other local stake holders to implement key actions recommended in the Manorkill Stream Management Plan as adopted by the Town of Conesville (for example, the restoration and re-planting of riparian zones, etc.).
- Finally, the program will, through organized community out reach programming and education activities, inform the public about local environmental concerns and foster leadership and academic skills in youth through actively engaging them in the study and protection of their local environment.

The skills EST members learn through their ongoing participation in the program include:

Physical Assessment: Assessing and describing the geology, typology and geography of the monitoring sites utilizing standard techniques of identifying rocks, minerals, and soils; topographical maps and hand held global positioning satellite location devices. Assessing stream conditions such as flow rate, stream bottom and substrate characteristics, and evidence of human activity and impact. All youth are taught to use digital cameras (provided by the program) and how digital photography and videography can be used to document and express their work, research and ideas. **(Integrates with NYS High School Earth Science and Math curriculum)**

Chemical Assessment: Techniques in conducting basic chemical analysis of water samples to determine a monitoring sites ability to support life. Including testing water for **pH, Alkalinity, Dissolved Oxygen, Turbidity, Conductivity, Nitrate – Nitrogen, and Orthophosphate.** EST

¹ Schoharie River Center's EST program is a 2007 Sea World / Busch Gardens / Fuji Film / National Wildlife Federation - Environmental Excellence Award Winning Program.
<http://www.seaworld.org/conservation-matters/eea/2007/nwf.htm>

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members become proficient in both data collection, interpretation and in the field analysis of results in accordance with EPA quality assurance guidelines. **(Integrates with NYS High School Chemistry curriculum)**

Biological Assessment: EST members learn and become proficient in the skills needed to collect and conduct a scientifically valid sample analysis of the Benthic Macro-invertebrate (BMI) population present and bacterial sampling (E-coli, and fecal coli form bacteria) at a monitoring site. EST members learn to identify organisms to the level of order and family, assess the diversity (EPT richness) of a site, and interpret and analyze the results to determine the ecological health of the site and the need for further testing or possible intervention. EST members become proficient at utilizing such tools as dissecting microscopes, laptop computers, and the NYS Department of Environmental Conservation inter-net web site BMI identification database. **(Integrates with NYS High School Biology curriculum)**

Community Education: The Environmental Study Team youth also learn the skills needed for successful public speaking through participating in public programs to educate the community about their stream monitoring work and findings providing presentations to school groups, community organizations, local town and county government meetings and at science fairs and environmental conferences around the State. The project members also collaborate with other organizations involved in fresh water monitoring efforts throughout the region, such as The Battenkill Conservancy, Hudson River Basin Watch, the Association for the Protection of the Adirondacks, Trout unlimited and Catskill Mountain Keepers.

EST members have presented their work at the Clean Water Congress, the National Envirothon Competition, The Schenectady County Water Quality Advisory Board, Union Colleges Mohawk River Symposium, Trout Unlimited Inc. – Schoharie Chapter, Duanesburg Lions Club, the Duanesburg School Science Fair, and the Charleston Town Board.

In 2007 the SRC EST program was awarded a **National Environmental Excellence Award** from the Sea World – Busch Gardens – Fuji Film Conservation Matters Award Program. It was one of only eight programs selected nationally out of 150 programs nominated. In accepting the award, 8 EST program members (6 youth and 2 adult chaperones) traveled to SeaWorld in San Diego, California. The Youth presented a 20 minute multi-media presentation (Oral, Video, and power point) on their work and research conducted through the EST program to a national audience of over 100 conservation and ecology professionals.

Promoting Health, Fitness and Positive Life Habits: The program also focuses on encouraging youth members to be physically fit and active stewards of the environment throughout their life by involving them in life-long mastery based, out-door recreational activities and hobbies such as hiking, cross-country skiing, snow shoeing, swimming, Skin and SCUBA diving, sailing, kayaking & canoeing, fishing, orienteering, nature photography and maple-syrup making. Through all the activities of the program, EST strives to foster in the youth members a sense of personal competence and self-confidence and encourage a life long interest in learning, promote positive social behavior, stewardship, and an involved citizenship.

Geographic Area Served

The Manorkill EST program will focus on the study of the areas and towns encompassing the Manorkill Watershed, and the impact of human activity on the watershed and the Gilboa Reservoir. While local youth living within the watershed will be targeted for participation in the

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program, other interested youth from Schoharie County and the surrounding areas (Greene, Delaware, Albany, Schenectady) are welcome to participate. Parents are also welcome to participate in the program.

The Manorkill EST program will meet at least bi-weekly (every other week) holding meetings on Sunday afternoons and/or after school. Meetings/activities generally run 3 - 5 hours depending on activity or task to be accomplished. The Conesville Town Hall will serve as the beginning /ending site for EST meetings, with the team traveling to specific locations and testing sites within the watershed to conduct monitoring and stream protection activities.

EST Project Schedule and Implementation Milestones:

Initial organizational and planning meetings for the Manorkill EST project began in June with a series of meetings with Town of Conesville officials (Supervisors Mike Brandow, Jake Labin, and others), the Gilboa-Conesville School Superintendent (Dr. Doreen McDonough), the Schoharie River Center (John McKeeby), and the Schoharie County Department of Planning (Rebecca Platel). An initial youth EST meeting occurred on July 19th with seven youth participating. Subsequent organizational meetings have been scheduled for August, and more youth from the area have expressed an interest in participating. School faculty from the Gilboa-Conesville School district have also expressed interest in participating in the program and helping with the recruitment of youth.

Key milestones in the implementation of the program will be:

1. Activity: EST Kick-off event 4 hours

Initial kick-off meeting & training hike for EST volunteers, (youth and adults) to orient them to the Manorkill watershed, the role and responsibilities of EST members, and the workings of the program.

Milestone/goal: Recruit up to 10 local youth and (parents) to participate in initial orientation meeting and hike along the Manorkill. Practice skills in Macro-invertebrate collecting, water chemistry testing physical site assessment. Discuss how EST can make a difference in the community. Develop a sense of cohesiveness among team members.

Timeline: Late August or early September

2. Activity: Planning meeting with local stake holders (Town, SWCD- Pete Nicholas, SRC etc.) and identification of specific Stream Management Plan activities that can be completed by EST and a time line for implementation, discussion of logistics, equipment, and supplies needs to complete each activity.

Milestone/goal: Create strong local buy in for supporting the program and the activities of stream management through identifying and choosing which SMP activities the EST program should initiate, creating a schedule of activities for participants to follow, and provide a calendar of events for the program youth / parents to plan around.

Timeline: August

3. Activity: EST team conducts Rapid Bioassessment data collection at sites (3 sites) within the watershed. Collecting physical assessment information - stream bottom / substrate analysis, water chemistry data, macro-invertebrate samples, and water samples for bacterial testing. Photo-document the sites.

Milestone/goal: Initial sampling by EST on Manorkill with training and support of Aquatic

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Biologists from Watershed Assessment Associates / SWCD EST and WAA conducting side-by-side data collection and field analysis on site. Macro-invertebrate samples preserved in the field for later identification and taxonomy workshop, water samples brought back to Town Hall / field lab for plating and incubating. EST members work to write up physical assessment data and water chemistry data.

Timeline: First week in September 2009.

4. Activity: Taxonomy / macro-invertebrate identification workshop for EST youth conducted by SRC staff and WAA taxonomist.

Milestone/goal: Introduction to BMI ecology and identification skills, determination of water quality using BMI surveying. Possible location: Gilboa-Conesville School

Time Line: Second week in September to co-inside with Hudson River Snap-shot day.

5. Activity: continue survey hikes along watershed, documenting sites of interest for further study or action. Conduct sampling / water chemistry data collection.

Milestone/goal: EST members continue to study watershed and practice / improve upon skills in macro-identification, and water quality determination, and data analysis

Timeline: October - November

6. Activity: EST team documents in written report and through a power point / poster presentation findings of water quality assessments conducted in September. Prepare paper / presentation for Clean Water Congress.

Milestone/goal: EST program youth successfully conduct and present their study of water quality at selected sites in the Watershed. EST present their study of the to local groups (town board, school groups and community groups as out reach and public education; and, as practice for presentation at Congress.

Timeline: November - Jan

7. Activity: Manokill: EST presents & competes in HBRW's Clean Water Congress at the Darrow School in December.

8. Activity: Winter forest ecology study within the watershed.

Milestone/goal: EST youth and parents cross country ski/snowshoe/and hike throughout the watershed to better understand the connections between Catskill forest ecology and the water quality. Team prepares skills in Envirothon topic areas: Forestry, Soils, Wildlife, Current issue

Timeline: Jan - March 2010

9. Activity: Maple Syrup Making / local sustainable forest economy

Milestone/goal: Utilizing local producers and possibly EST youth / families who produce syrup, the EST team will tap and gather sap and produce using an evaporator either locally or through the SRC sap house in Esperance.

Timeline: March - April

10. Activity: Capital Region Envirothon Competition - NYS Power Authority - Gilboa

Milestone/goal: Manokill EST team successfully fields three teams at the Envirothon (2 high school, one middle school team)

11. Activity: Begin riparian zone restoration projects with SWCD assistance/direction

Milestone/goal: Local stakeholders identify sites in watershed where riparian area restoration is needed and EST document initial water quality levels and fish and wildlife habitat areas at sites

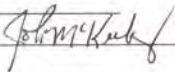
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identified for replanting/restoration. EST youth work with stakeholders to restore / re-plant native vegetations. EST continues to monitor sites over time. Conducts Rapid bio-assessments of new sites and continues annual monitoring of ongoing sites.

Timeline: May - August

The Schoharie River Center has successfully developed and operated the Environmental Study Team program since 2002. Each year the EST program has grown in the number of youth involved and the geographic area the program services and draws interested and motivated youth. Given our high levels of success, especially with at-risk youth, the EST program has been recognized both locally and nationally as a model program in the area of youth development and experiential education.

What makes the Manokill EST program especially unique is the close involvement of the EST team with the Town of Conesville and the County, as the program seeks to collaborate with these stake holders in the implementation of the Manokill Stream Management Plan. This ongoing collaboration will afford the youth participants a unique opportunity to participate and understand watershed issues from a regional policy and government perspective as well as from the technical and scientific.

Signature of Applicant:  Date: 7/27/09

Signature of Property Owner (if applicable): _____ Date: _____