



TOWN OF SOUTH BURY

501 Main Street South

Southbury, Connecticut 06488-2295

Fax: (203) 264-9762

RECEIVED

JUN 20 2007

INLAND FISHERIES

June 19, 2007

Mr. Michael Powers
Housatonic River Natural Resources for Restoration Project
79 Elm Street
Hartford, CT. 06106

Dear Mr. Powers:

Respectfully submitted for consideration is the Town of Southbury's response to the Natural Resources Trustee SubCouncil for Connecticut's request for supplemental information, regarding Southbury's funding proposal for the **Ballantine Park River Embankment Restoration Project**.

Enclosed for your review and part of this submittal are the following documents.

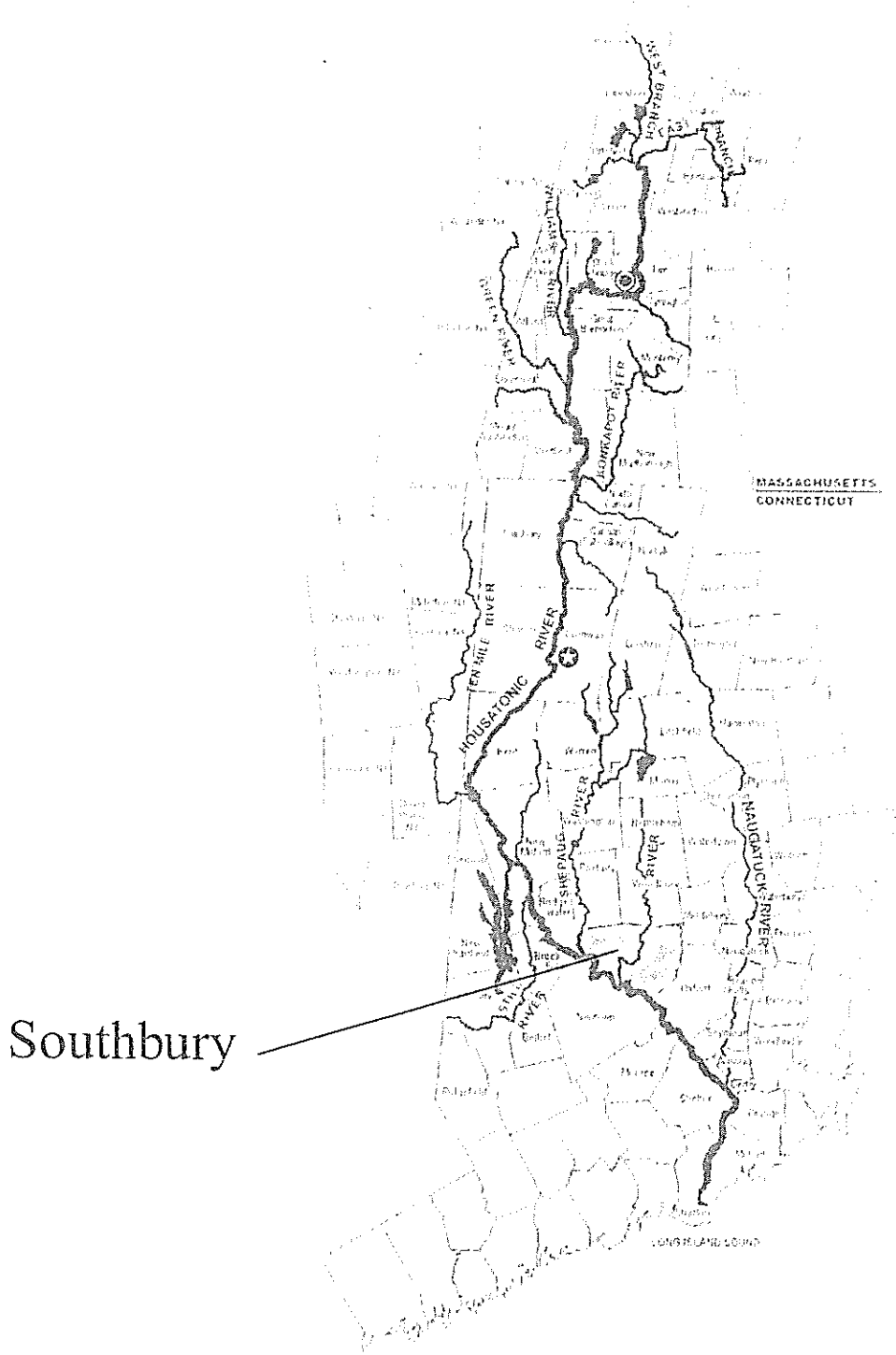
- Housatonic Watershed Map Locating The Town of Southbury
- Map Of Southbury Locating Project On The Housatonic River
- Letter Of Support From The Central Naugatuck Valley Council Of Governments
- Part A: Sponsor and Project Summary Form
- Part B: Project Abstract
- Part C: Project Narrative
- Part D: Project Budget Narrative and Budget Forms
- Supporting Information

Thank you for your time and consideration of this project. The Town believes this is an important project to protect the Pomperaug and Housatonic Rivers from additional sedimentation and its associated degradation of water quality. The Town is ready to proceed once funding is secured. Should you or the Subcouncil have any questions or comments regarding the proposal, please feel free to contact me.

Very truly yours,

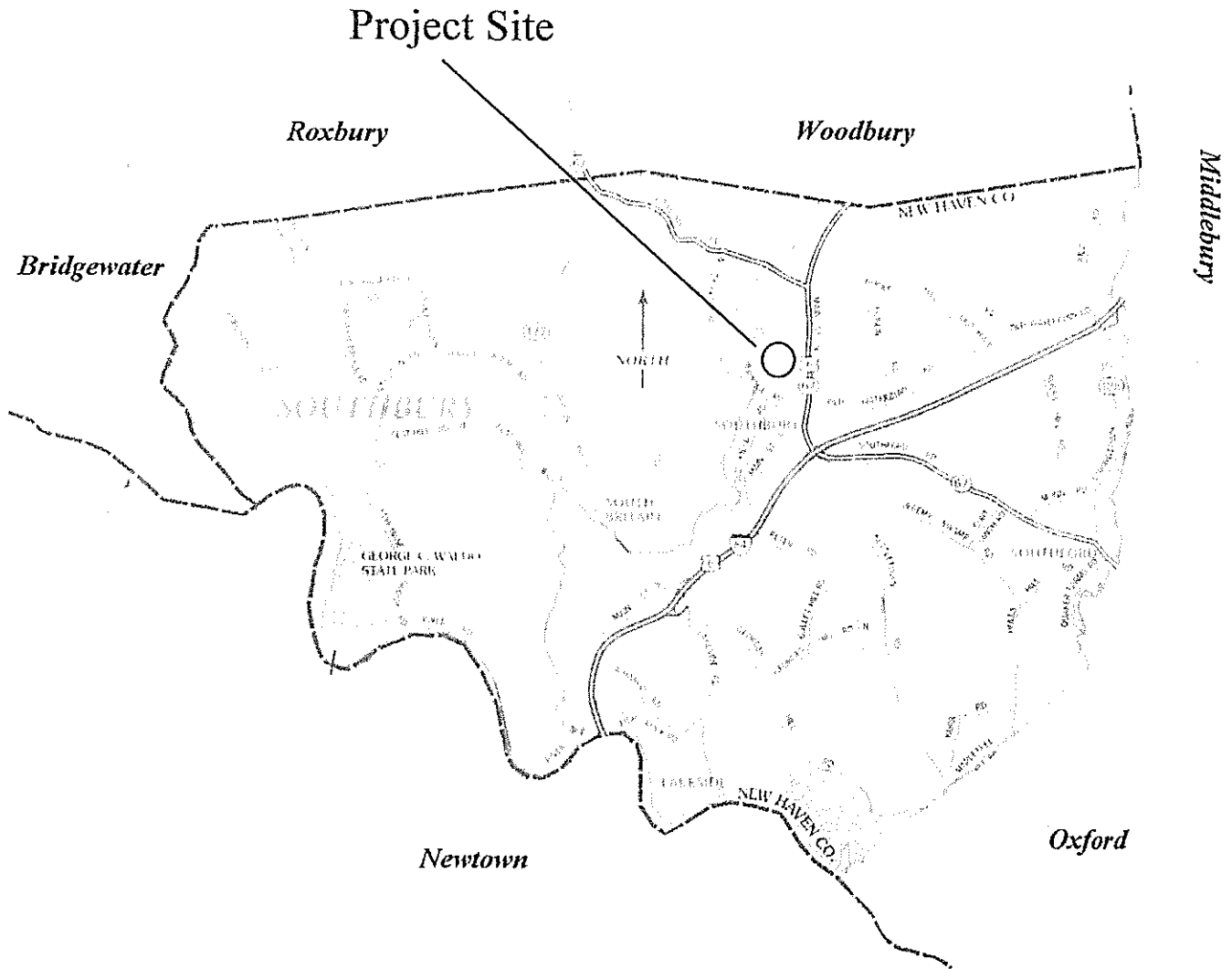
Mark A.R. Cooper
First Selectman

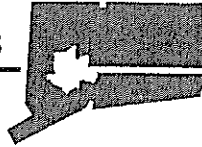
Housatonic Watershed



Town Of Southbury

Ballentine Park River Bank Restoration





June 15, 2007

Michael Powers
Inland Fisheries
Department of Environmental Protection
Housatonic River Natural Resources Restoration Project
79 Elm Street
Hartford, CT 06106-3854

Dear Mr. Powers:

At its June 8th meeting, the Council of Governments of the Central Naugatuck Valley (COGCV) voted unanimously to found that Southbury's application to the Housatonic River Basin Natural Resources Restoration Project for the Balentine Park River Embankment Restoration for up to \$200,00 is in accordance with the 1998 *Regional Plan of Conservation and Development*.

Balentine Park is within the Pomperaug River Watershed, an important water resource in the western part of the Central Naugatuck Valley Region, and a tributary to the Housatonic River. The protection of water quality is a major recommendation of the *Regional Plan*.

Thank you for your attention.

Sincerely,

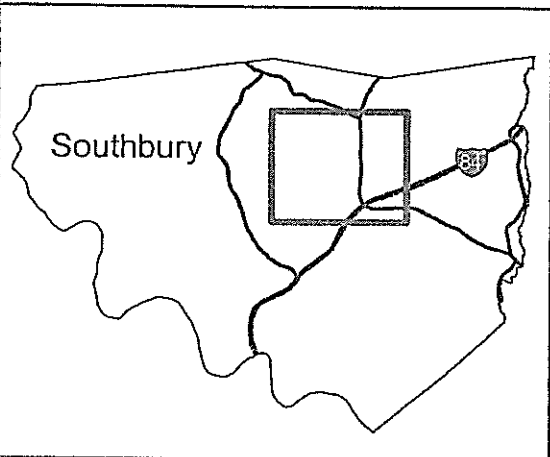
Peter Dorpalen
Executive Director

CC: Mark Cooper
Nancy van Norden
Harmon Andrews
Marc Taylor, PRWC





T:\Projects\Land Use\Land Use Planning\Municipal Assistance\Southbury - Balentine Park.wpd

Future Land Use





Balentine Park River Enbankment Restoration Project Area






Development Areas

-  Growth Areas
-  Major Economic Areas
-  Community Centers
-  Regional Core

Conservation Areas

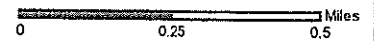
-  Rural Areas
-  Severe Environmental Constraints
-  Committed Open Space
-  Proposed Open Space

Transportation and Other

-  Regional Arterial
-  Local Road
-  Municipal Boundary



Balentine Park River
Enbankment Restoration
Project Area



Housatonic River Basin Natural Resources Restoration Project
Natural Resources Trustee SubCouncil for Connecticut
Request for Supplemental Information (RSI)
INSTRUCTIONS

PART A: SPONSOR AND PROJECT SUMMARY FORM

Please read "Request for Supplemental Information (RFI) OVERVIEW" and this document, "Request for Supplemental Information (RSI) INSTRUCTIONS" before completing this form.

Part A must be completed using this "Sponsor and Project Summary Form"

SPONSOR INFORMATION

Type of Entity Check the box that best describes the sponsor.

- | | |
|--------------------------------------------------|----------------------------------------------------------|
| <input type="checkbox"/> Private individual | <input checked="" type="checkbox"/> Municipal government |
| <input type="checkbox"/> Non-profit organization | <input type="checkbox"/> Corporation or Business |
| <input type="checkbox"/> State government | <input type="checkbox"/> County government |
| <input type="checkbox"/> Federal government | <input type="checkbox"/> Academic Institution |
| <input type="checkbox"/> Tribal government | <input type="checkbox"/> Other (explain) |

Authorized Representative of Sponsor

Mark A. R. Cooper

Name

First Selectman

Title

501 Main Street South

Address

Southbury, CT 06488

City

State

Zip

Phone

203-262-0647

Email

selectman@southbury-ct.gov

Contact Person (if different from Authorized Representative):

Same

Name

Title

Address

City

State

Zip

Phone

Email

Project Name Provide a brief working name:

Ballentine Park streambank restoration/stabilization project

Project Location

Attach an 8.5 x 11-inch map or copy of an aerial photograph showing project location and extent. Include pertinent topographic and geographic information, a scale, and north arrow.

State(s), Municipality/ies:

Connecticut, Southbury

Longitude for approximate center of project area:

73.22064W

Latitude for approximate center of project area:

41.48621N

NOTE: If a specific location(s) has/have not been selected yet, include in Part C a narrative describing how project location(s) will be selected.

Restoration Priority Category See Appendix C of these Instructions for Restoration Priority Category Descriptions

Primary Category. Check the restoration category that is the primary goal of the project. Check one box.

- Aquatic Natural Resources Restoration/Enhancement
- Riparian & Floodplain Natural Resources Restoration/Enhancement
- Restoration/Enhancement of Recreational Uses of Natural Resources

Secondary Categories. Check all relevant boxes.

- Aquatic Natural Resources Restoration/Enhancement
- Riparian & Floodplain Natural Resources Restoration/Enhancement
- Restoration/Enhancement of Recreational Uses of Natural Resources

List Specific Injured Natural Resources and/or Impaired Natural Resource Services to Benefit from Project

Improve water quality in Pomperaug River and enhance fish and invertebrate habitat in the vicinity of Ballantine Park. Eliminate a severe erosion problem and reduce sedimentation in areas downstream of area.

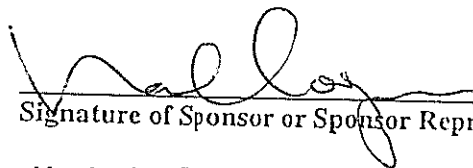
Project Budget Summary

Complete the table below to summarize the budget information that is detailed in Part D: Project Budget Narrative and Forms. Sponsors are advised to complete Part D (Project Budget Narrative and Forms) before filling in the table below.

Housatonic River NRD Funds – Requested	Other Contributions (Committed)	Other Contributions (Not Committed)	Total Project Cost (boxes 1+2+3)
1. From Part D, Table 2, Box 5 \$180,000.	2. From Part D, Table 2, Box 6 \$10,000	3. From Part D, Table 2, Box 7	4. From Part D, Table 2, Box 8 \$190,000.
	Amount of Other Contributions to Be Considered as Cost-Matching to NRD Fund Request		
	5. \$10,000.		

Authorizing Statement

I hereby declare that the information included in this project submission and all attachments is true, complete, and accurate to the best of my knowledge, and that the proposed project complies with all applicable state, local, and federal laws and regulations.



6/19/2007

Signature of Sponsor or Sponsor Representative

Date

Mark A. R. Cooper, First Selectman

Name of Sponsor or Sponsor Representative
(Type or print clearly).

Part B - Project Abstract: Ballantine Park River Embankment Restoration Project

The Town of Southbury Ballantine Park River Embankment Restoration Project is located within the Housatonic Basin Watershed

A portion of the Pomperaug River embankment adjacent to Ballantine Park has developed a serious erosion problem and has become unstable. The erosion of this portion of the Pomperaug River embankment at Ballantine Park is caused in part by the natural flow of water meandering around the bend of the river and by the large volume of surface flow which spills over the top of the embankment from the 24.84 acre park. The erosion is contributing to sedimentation of both the Pomperaug and Housatonic Rivers, degrading their water quality ecologically, recreationally, and economically.

The primary goal of the Ballantine Park River Embankment Restoration Project is to stabilize a portion of the Pomperaug River embankment. This project will help to rehabilitate, restore, and enhance the watershed's natural resources by providing immediate, sustainable, and measurable benefits.

The immediate benefits of this restoration project include improved water quality for aquatic life and their habitat. With less sedimentation, the rivers natural flow channel will clear, restoring and enhancing recreational opportunities such as recreational fishing and canoeing.

The Town of Southbury would engage a contractor with river embankment restoration experience to remediate the erosion problem and redirect the parks surface water flow into the sandy soils above the embankment.

The Town of Southbury monitor the embankment to ensure its continued stability.

Part C - Project Narrative: Ballantine Park River Embankment Restoration Project - Page 1

Location:

The Town of Southbury encompasses about 40 square miles of area in southwestern Connecticut. The town is bounded on the west by the Housatonic River (forming Lake Zoar and Lake Lillinonah), the Eight Mile Brook to the East, and has the Pomperaug River running diagonally through town. The Pomperaug River discharges into the Housatonic River just west of the I-84 Rochambeau Bridge.

Problem Statement:

A portion of the Pomperaug River embankment adjacent to Ballantine Park has developed a serious erosion problem and has become unstable. The erosion of this portion of the Pomperaug River embankment at Ballantine Park is caused by the natural flow of water meandering around the bend of the river at this location. The combination of the stream's meandering alignment and the sandy soils has resulted in some significant stream bank erosion. The erosion is contributing to sedimentation of both the Pomperaug and Housatonic Rivers, degrading their water quality ecologically, recreationally, and economically.

Project Goals and Objectives:

The primary goal of the Ballantine Park River Embankment Restoration Project is to stabilize a portion of the Pomperaug River embankment to reduce sedimentation in the Housatonic River Watershed. This project will help to rehabilitate, restore, and enhance the watershed's natural resources by providing immediate, sustainable, and measurable benefits.

The stabilization of the river embankment at this location will restore and enhance the rivers habitat by reducing the level of sedimentation, considered by some to be the number 1 pollutant of our streams and rivers. In addition to negatively impacting aquatic organisms, the ultimate deposition of this sediment in Lake Zoar decreases its recreational value for fishing and boating, as well as its storage capacity.

Project Benefits:

Stabilization of the embankment will provide immediate and sustained benefits to the Housatonic River watershed. The immediate benefits of this restoration project by reducing sedimentation of the water will include improved water quality for aquatic life and their habitat. Over time, a sustained benefit of the healthier aquatic habitat will result in healthier aquatic life, including sport fish. With less sedimentation, the rivers natural flow channel will clear, restoring and enhancing recreational opportunities such as recreational fishing and canoeing.

General Implementation Tasks:

To implement the Ballantine Park River Embankment Restoration Project, the Town of Southbury would engage a contractor with river embankment restoration experience to remediate the erosion problem incorporating bio-engineering techniques that use native materials and vegetation to protect the river bank. Based on preliminary recommendations by Thomas J. Daly, P.E., of Milone & MacBroom, Inc., remediation of this problem would likely include the following steps:

- Removal of debris in the river channel that may restrict and divert the natural flow of the stream at this location.
- Stabilize the slope by regrading the vertical bank face, preferably with a 1' vertical to 2' horizontal slope.
- Protect the toe of the slope integrating bio-engineered structural protection, wherever possible.
- Re-establish vegetation on the slope that will strengthen and protect it from further erosion.

Follow-up and Monitoring

Once the embankment is stabilized, the Town of Southbury will utilize Land Use staff to monitor the embankment to ensure its continued stability, and in collaboration with allied groups such as the Pomperaug Watershed Coalition, monitor water quality down stream to quantify sediment reduction.

The proposed remedial plan is relatively inexpensive and easy to install. Recent cost estimates have been attached and made part of this submittal.

Evaluation Criteria Narrative

2.1 Relevance of Project

The project is located on the Pomperaug River, a major stream contributor to the Housatonic River watershed that flows through the Towns of Woodbury and Southbury, and joins the Housatonic River at Lake Zoar in the Town of Southbury.

2.1.2 Natural Recovery Period

The critical area in question suffers from erosional forces created by land development activities that contribute concentrated surface run off that exacerbates the erosional forces acting upon the stream channel.

In the absence of intervention, the site may not experience natural recovery period in that the erosional forces would continue to act upon the landscape to its detriment. The River will

experience immediate benefit from implementation of this project, as the sedimentation process would stop almost immediately upon implementation of structural measures. The area will further recover with the establishment of dense native vegetation over the stream bank, a process that will yield benefits within one growing season.

While erosion may be considered a natural process of stream morphology, the occurrence of concentrated flow from upland areas exacerbates the erosion and if left to occur, would greatly accelerate the natural process and lead to accelerated slumping of the stream banks. As this area of the park is a popular area to enjoy the natural beauty and fishing opportunities provided by the river, it was determined that it was not in the best interest of those who enjoy the river to leave the stream banks in their currently eroded state.

2.1.3 Sustainable Benefits

Structural and vegetative stabilization of the river bank in this area will stem the excessive sediment load to the river reducing the sediment input from this critical erosion area to a natural resource that now suffers under the burden of sediment load.

The proposed project represents multiple long term benefits including enhanced finfish habitat enhanced recreational opportunities, and improved water quality.

Water quality will improve as a result of sediment reduction. Excess sediment coats the river bottom, clouds the water, and lessens the water depth and degrades finfish habitat.

The project improves finfish habitat as a result of the cooler water temperatures and shading afforded by the proposed tree planting along the banks.

2.1.4 Ecological Benefits

This project will result in an increase of habitat for desirable native finfish species both in this particular portion of the River, and in downstream and upstream reaches. This project will mend an injured resource, thereby restoring a broken link within the river corridor.

2.1.5 Magnitude of Recreational Benefits

Recreational opportunities improve as more stable areas are created for recreational enjoyment of the river from the stabilized banks affording spots for fishing. As the surrounding land is town property it may be considered as open space available for passive recreational use, enjoyed by residents not only of Southbury, but also from the surrounding towns. Ballantine Park provides the only public access to the river in this area.

The numerous pathways to the river indicate that this stretch of the river is one that is enjoyed by visitors to the Park, and may indicate the existence of a favorite fishing spot.

2.2.1 Technical Merit/ Technological Feasibility

The remediation of this problem would include the following steps:

1) Removal of debris in the stream channel

Remove any channel obstructions such as fallen trees, excessive detritus from the eroded banks (carefully and judiciously), and any large boulders that may be used for shoreline stabilization.

2) Stabilize the slopes

The eroded banks are now situated at vertical angles and contain faces that are very unstable. The slopes would be graded back to a minimum 1 foot vertical to 1 foot horizontal, ideally to 2 feet horizontal to 1 foot vertical.

3) Protect the toe of slope

Provide bio-engineered structural protection of the toe of the slope. The toe is the area most susceptible to continued erosion. This protection can be constructed of native boulders (3-5 feet in diameter) timber crib wall, stumps or bio-logs. The specific combination of techniques utilized for protection will be determined during the planning and review phase of the project. The town will strive to utilize bio engineered techniques to their maximum potential.

4) Establish vegetation on slope

Re-establish brush vegetation that will strengthen the slope. Live dormant cuttings or tublings of brush species such as Red- Dosier Dogwood, Silky Dogwood or Pussy Willow are available from nurseries specializing in wetland plantings. Willow or Birch cuttings planted into the newly established slope has been used successfully to establish a strong vigorous vegetative growth and root system for bank stabilization in many similar circumstances (Still River Stream bank Stabilization Project- Danbury, CT)

Outside of the initial slope protection measures, these proposed solutions are relatively provide an excellent opportunity for community involvement in the project.

Southbury contains an extensive network of Eagle Scouts who regularly fulfill their Eagle requirements by constructing conservation minded projects such as trail footbridges and cutting of new trails for the local land trust and other conservation groups.

2.2.4 Measurable Results

The project consists of stabilization of approximately 400 feet of the Pomperaug River stream bank utilizing bioengineering techniques to achieve a naturalistic solution to a erosion and sedimentation problem compounded by surface runoff and slope destabilization created by human foot traffic to what is a popular recreational area enjoyed by many, that causes excessive sedimentation that adversely effects water quality to water resources not only in the immediate area, but to the Housatonic River beyond, the receiving water resource for these impacted waters.

The structural functional parameter includes stabilization and restoration of 400 linear feet of unstable stream bank utilizing the bioengineering methods described in this proposal.

The specific length of stream bank will be identified in the planning portion of the project and will provide a specific measurable parameter.

Amount of bare eroding surface area adjacent to the stream bank affords a secondary measurable functional parameter. As the project envisions a variety of stabilization layers (shrubs, grasses, saplings, etc the project envisions restoring 2,000 square feet of surface area currently devoid of vegetation and contributing to the erosion process.

The site will be monitored for short term results and over the long term to ensure that no further human induced alterations are negatively affecting the restored area.

Over the short term (up to 3 years), Town personnel and volunteers will monitor the structural integrity of the stabilization measures stabilizing the stream bank, and the regenerative success of the saplings, shrubs and grasses.

Over the long term (on a continual basis) personnel will monitor the restoration area for structural stability in relationship to the ongoing forces acting upon the stabilization measures. As this is a popular area for people to enjoy the pleasures of the River, monitoring will ensure that continued use of the area does not cause unanticipated bare surface areas resulting from over use (foot traffic) that might not allow the various layers of vegetation to successfully establish in the target area.

Visitors will be encouraged to use existing pathways, and these pathways will be reinforced to reduce their erosion potential.

A potential challenge is posed by visitors not abiding by existing pathways that would lead to loss of newly planted vegetation from over use by foot traffic. This problem could be addressed by close monitoring of the restoration area, and by temporary fencing to protect newly planted areas until such time as they have become permanently established.

2.3.4 Leveraging of Additional Resources

The Town will provide in kind services of town staff as the principal members of the project team. They are committed to successful implementation of the project. Additionally, in kind resources and monies total \$10,000 and include costs for administration and monitoring.

2.4.1 Community Involvement

The Town of Southbury has a long tradition of community involvement in conservation projects, particularly by the local Boy and Girl Scout Troops, and the student body at Regional 15 Pomperaug High School, a regional school that services the communities of Southbury and Middlebury.

The project would solicit support in the way of volunteer services from these target groups for the vegetative planting, trail establishment and monitoring portion of the project.

Additionally, this project will provide a learning experience in a number of areas of classroom study such as in the areas of geology, botany, biology, and engineering. The project will explicitly solicit teacher and classroom participation during project duration and follow up.

2.4.2 Beneficial Socioeconomic Impacts

Restoration of the stream bank, redirection of the contributing overland surface flow, and establishment of vigorous vegetative cover represent beneficial impacts directly to the river, and indirectly to the Housatonic River.

Surface water quality will immediately improve with the stabilization of the slope as a result of the containment of sediment on the stream banks. While erosion of river banks is a naturally occurring process, the sediment deposition represents a pollutant load that clogs the river channel in the immediate area. This sediment load adversely impacts the finfish habitat of the River, by covering the cobbled stream bed, while the undercut banks collapse compounding the sediment load. Additionally, mature streamside trees, that

2.4.3 Coordination and Integration

The Council of Governments of the Central Naugatuck Valley endorsed the proposal and concluded that the proposed project is in accordance with its regional plan of conservation and

development, and that the project will contribute to the protection of water quality, a major recommendation of the plan.

2.4.4 Public Outreach

The Town of Southbury will utilize the opportunity to publicize the conservation aspect of the project, through a variety of media, and in conjunction with local land use organizations who may participate in the project. Southbury has demonstrated a long history of conservation and water quality enhancement projects such as a town wide catch basin stenciling program that informs citizens of the effect of illegal dumping on water quality of the local rivers and watercourses.

2.5.1 Technical Capacity of Applicant and Project Team

The Town of Southbury has a very capable project team that includes the First Selectman, Director of Public Works, Land Use Inspector, fiscal officer and associated town support staff. Town staff bring a variety of talents and abilities to successfully complete the project. Thomas Crowe, the town's public works director holds a Professional Engineer designation and has managed many stabilization projects in that capacity. Mark Massoud, the town's land use inspector spearheaded the Still River Land Use Inventory Project, an effort that led to an extensive river restoration program in Danbury, CT. He also participated in various aspects of the stream bank stabilization portion of the efforts in that municipality. Milone and McBroom a highly respected engineering firm in the environmental field are the town's technical consultant and will collaborate on successful implementation of this project.

2.5.2 Administrative Capacities

The Town will utilize its existing staff infrastructure to manage all administrative aspects of the project ensuring that it runs as effectively as any town sponsored program. As stated above, the town's outside technical consultant has and will collaborate with the project team to ensure successful implementation of the project.

2.5.3 Project Commitments

All resources required for implementation of the project, with the exception of professional consultants and contractors required to implement the project are town resources therefore no special commitments are required.

Part D - Budget Narrative: Ballantine Park River Embankment Restoration Project

The Town of Southbury has obtained cost estimates for the restoration of the Ballantine Park River Embankment Restoration Project and associated engineering work needed. All of the needed work is within the Town of Southbury's property. The restoration project work has been estimated at \$160,000, depending on the actual engineering design requirements.

Engineering costs have been estimated at \$10,000. The necessary engineering work will begin as soon as funding is secured.

Permits will be needed for this work. \$10,000 has been estimated for obtaining necessary permits from the local Inland-wetlands agency, State Inland-wetlands unit of the CT DEP, and consultation with the Army Corps of Engineers.

The Town of Southbury will provide project administration through the First Selectman's office, Director of Public Works, and Finance Officer. These services have been estimated at \$5,000 and will be provided as an in-kind service

Once the project is complete, the Town of Southbury will monitor the embankment to ensure the stabilization project is successful. This cost has been estimated at \$5,000 and will be provided as an in-kind service.

The total estimated cost for this project is \$190,000 of which \$180,000 is sought from the Housatonic River Natural Resources Funds.

Tables 1 and 2 are completed and attached.

TABLE 1. HOUSATONIC RIVER NRD FUNDING ALLOCATION BY FISCAL YEARS²

PROJECT TITLE:		Ballentine Park River Embankment Restoration Project			
SPONSOR NAME:		Town of Southbury			
EXPENSE CATEGORY (See App. A)	FISCAL YEAR 1	FISCAL YEAR 2	FISCAL YEAR 3	FISCAL YEAR 4	
	Housatonic River NRD Funds	Housatonic River NRD Funds	Housatonic River NRD Funds	Housatonic River NRD Funds	
A. SALARIES Administration					
B. OVERHEAD AND BENEFITS					
C. CONTRACTED SERVICES	\$160,000.				
D. SUPPLIES, MATERIALS AND EQUIPMENT					
E. TRAVEL					
F. OTHER (LIST) Permits	\$ 10,000.				
G. OTHER (LIST) Engineering	\$ 10,000.				
TOTAL BY FISCAL YEAR	1	2	3	4	
	\$180,000.				
GRAND TOTAL (sum of boxes 1+2+3+4) [This sum is the total NRD fund request and should match Part A, Budget Summary, Box 1]					

² The fiscal year is July 1 - June 30. If the proposed project will be completed in one year, fill in only the column titled "Fiscal Year 1."

TABLE 2. PROJECT BUDGET SUMMARY BY TASK AND FUNDING SOURCE

PROJECT TITLE:		Ballentine Park River Embankment Restoration Project			
SPONSOR NAME:		Town of Southbury			
TASK ³	HOUSATONIC RIVER NRD FUNDS	OTHER CONTRIBUTIONS		TOTAL COST BY TASK	
		COMMITTED	NOT COMMITTED		
A. Administration		\$5,000.			
B. Monitoring		\$5,000.			
C. Constructural	\$160,000.				
D. Permits	\$ 10,000.				
E.					
F. Engineering	\$ 10,000.				
G.					
TOTAL BY FUNDING SOURCE	5	6	7	8	
		\$180,000.	\$10,000.	GRAND TOTAL \$190,000.	

NOTES: Box 5 should be the same as the Grand Total indicated in Part D Table 1. Box 6 above should match Part A, Budget Summary, Box 2. Box 7 above should match Part A, Budget Summary, Box 3. Box 8 should match Part A, Budget Summary, Box 4.

³ The listed tasks should correspond with information provided in the Project Implementation Plan.



Mark E. Lancor, PE
Paul A. Lavoilee, PE
Steve M. Gabriele, RLS

June 18, 2007

Mr. Mark A. Cooper, R.S.,
First Selectman
Town of Southbury
501 Main Street South
Southbury, CT 06488-2295

Re: Ballantine Park
Bank Stabilization

Dear First Selectman Cooper:

DYMAR is prepared to provide the Town of Southbury with a Professional Engineering and Land Surveying Services to prepare a T-2 Topographic Map and Bank Stabilization Design for the above referenced project. The fixed fee to perform these services is \$10,000. We would initiate the work based on an approved schedule and execution of a formal contract.

Thank you for the opportunity to provide you with a service proposal and feel free to call me if you need to discuss this matter further.

Very truly yours,

Mark E. Lancor, P.E.
Principal

G:\WIPS\Proposal\2007\Engineer\Southbury Ballantine Park.doc