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**HOUSATONIC RIVER  
NATURAL RESOURCE DAMAGES FUND  
ROUND 1, 2005 Massachusetts SubCouncil**

**Project Proposal Form**

**PART A. APPLICANT AND PROJECT INFORMATION.**

Responses may be entered electronically, saved, and printed. Or, print and complete form with black ink.

**APPLICANT INFORMATION**

**Type of Entity** Check the box that best describes the applicant.

- |   |  |
|---|--|
| <input type="checkbox"/> Private individual                 | <input type="checkbox"/> Municipal government    |
| <input checked="" 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)         |

Empty rectangular box for additional information.

**Authorized Representative of Applicant**

Laura Dubester  
Name

Director  
Title

Center for Ecological Technology (CET)  
Address

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City State Zip

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**Contact Person (if different)**

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Name

Empty rectangular box  
Title

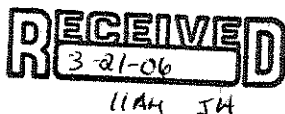
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City State Zip

Phone: Empty rectangular box

Email: Empty rectangular box



**Project Name** Provide a brief working name:

Less Toxic Landscapes: A Healthier Housatonic River

**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), Massachusetts

Longitude for approximate center of project area: Stockbridge: 73.32

Latitude for approximate center of project area: Stockbridge: 42.29

**Restoration Priority Category** See instructions for category descriptions.

**Primary Category.** Check one box.

**Secondary Categories.** Check all relevant boxes.

- Aquatic Biological Resources and Habitat
- Wildlife Resources and Habitat
- Recreational Uses
- Environmental Education and Outreach

- Aquatic Biological Resources and Habitat
- Wildlife Resources and Habitat
- Recreational Uses
- Environmental Education and Outreach

**List Specific Injured Natural Resources and/or Impaired Natural Resource Services to Benefit from Project** (see Section 1.2 of the Restoration Project Selection Procedure for a summary of injuries)

Current water quality monitoring data indicates elevated levels of phosphorous and nitrates, known to create poor habitat for fish. These concentrations are high in urban streams. Fish and other aquatic species will recover more quickly if citizens reduce their use of chemical fertilizers and pesticides on lawns and gardens within the watershed.

**Project Type** See instructions for project type descriptions. Check all relevant boxes.

- Resource-based                       Access-based                       Maintenance-based

**Project Budget Summary**

Complete the table below to summarize the budget information that is detailed in Part E: Project Budget. Applicants are advised to complete Part E of the proposal (Project Budget) before filling in the boxes below.

<b>Housatonic River NRD Fund – Requested</b>	<b>Other Contributions (Committed)</b>	<b>Other Contributions (Not Committed)</b>	<b>Total Project Cost (boxes 1+2+3)</b>
\$216,540 (3 years)	\$4,500 (3 years)	\$61,500 (3 years)	\$282,540
<p><b>Amount of Other Contributions to Be Considered as Cost-Share to NRD Fund Request</b></p> <p>Committed: Ward’s Nursery: \$3,000; Western MA Master Gardeners Association: \$1,500;                      Uncommitted: USDA: \$60,000; Use of Community Facilities: \$1,500</p>			

**Authorizing Statement**

I hereby declare that the information included in this project proposal 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.

\_\_\_\_\_  
**Signature of Applicant or Applicant Representative**

\_\_\_\_\_  
**Date**

## **PART B. PROJECT ABSTRACT**

The Housatonic River suffers from nutrient concentrations that diminish habitat for fish and other aquatic species as well as impairment from herbicides and pesticides. Diazinon, found in urban areas, is highly toxic to birds, mammals, beneficial insects and freshwater fish. Changing human behavior through effective, timely education will reduce the overall toxic load from non-point sources.

**Less Toxic Landscapes: A Healthier Housatonic River** will adapt successful strategies used by Town of Wellesley MA and King County, Washington to address the water pollution caused by outdoor pesticide use. The Center for Ecological Technology (CET) will target the public; garden centers, hardware stores, landscape contractors, facility managers; and municipalities in the watershed. Education will reach specific audiences when they are most receptive to change. Training landscapers will take place in the winter months when they have time to attend a workshop. Workshops for homeowners will be scheduled before and during the growing season when they are thinking about their lawns and gardens. Workshops, trainings, media, retail displays and social marketing techniques will stimulate behavior changes so less chemical pesticides reach the Housatonic River. This multi-year effort will reduce the quantity of pesticides used on lawns and protect the environment and public health.

Total cost: \$282,540 for 2007 – 2010. Request to NRD Trustees: \$216,540

Overall schedule: Winter: Landscaper Workshops, training for retail staff  
Early spring –fall: education for general public (repeated over 3 years)

Partners: City of Pittsfield, Western Massachusetts Master Gardeners Association.

## PART B. PROJECT NARRATIVE

Lawns and gardens are a major component of the unforested Berkshire County landscape. If classified as a crop, lawns would constitute the fifth largest crop in the nation, following corn, soybeans, wheat, and hay<sup>1</sup>. Although people tend to think of lawns, parks, cemeteries, golf courses and roadsides as natural, chemical pesticides are applied to these areas at about the same rates as those used for row crops<sup>2</sup>. Phosphates and nitrogen, two of the main ingredients in fertilizers, can impair water quality in rivers, lakes and ponds through direct runoff, storm drains and improper disposal. Lakes and ponds are especially vulnerable to eutrophication from such chemicals. Drinking water wells and groundwater can be impacted as well through direct applications or improper disposal. According to the US EPA, researchers from Cornell University found that 60% of nitrogen applied to lawns leached into groundwater.<sup>3</sup>

The EPA has classified many chemicals commonly used in lawn and garden care as persistent, bioaccumulative and toxic. Existing state policies and regulations governing pesticide use target commercial users. Although the same products, at lower concentrations, are readily available for individual use, consumers often do not receive adequate information regarding product choice and use. Yet, consumer demand drives the products and services offered by local retailers and landscape contractors.

Fertilizers, pesticides and herbicides are also toxic. According to the EPA, “the commonplace widespread use of pesticides is both a major environmental problem and a public health issue.”<sup>4</sup> The United States Geological Survey found elevated levels of DDT (more than two decades after its ban) and Polycyclic Aromatic Hydrocarbons (PAHs) along the East Branch of the Housatonic and along the Green River in Great Barrington, Massachusetts. The EPA considers a number of commonly used herbicides and pesticides (e.g. chlordane, aldrin, heptachlor, isodrin, toxaphene, pentimethalin and trifluralin) as persistent, bioaccumulative and toxic. Housatonic Valley Association’s (HVA) 2001-2003 water quality monitoring of the East Branch found elevated nitrates and phosphorous levels along several sites in Hinsdale and Dalton above the source of PCB contamination<sup>5</sup>.

Increased education for consumers, municipalities, schools and businesses about the relationship between fertilizer and pesticide use and contamination of private wells and public drinking water supplies is needed. This education will help communities along the Housatonic River protect water resources, reduce the toxicity of the waste stream, and reduce the financial burden of hazardous waste

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<sup>1</sup> USDA, 1992.

<sup>2</sup> Barth, C. 1995a. Nutrients: from Lawn to Stream. *Watershed Protection Techniques*. 2(1): 239-246.

<sup>3</sup> US EPA, 1993. Guidance Specifying Management Measures for Sources of Pollution in Coastal Waters. EPA 840-B-92-002. Pp.4-121.

<sup>4</sup> US EPA, “Healthy Lawn, Healthy Environment” Office of Prevention, Pesticides and Toxic Substances, June 1992 and EPA, February 1993, “Lawn Care Pesticides White Paper”.

<sup>5</sup> Housatonic River Water Quality Report, East Branch, 2001-2003. <http://www.hvatoday.org/publications/EB01-03WQReport.pdf>

disposal. The Center for Ecological Technology (CET<sup>sm</sup>) will connect human actions related to caring for lawns and gardens to the ecological health and restoration of the Housatonic River.

When people understand the strong link the use of chemical pesticides and drinking water contamination, they are more likely to make different choices. Other strong motivators are protecting the health of children and pets. CET is positioned to provide easy alternatives that are more ecologically sensitive. This education will help communities protect water resources, reduce the toxicity of the waste stream, and reduce the financial burden of hazardous waste disposal. In order to effect behavior change, CET will connect the use of chemical pesticides with drinking water safety and human health, as well as to the health of the river and the species that depend upon it for their well-being.

### Goals and Objectives

- a. Improve the public's connection to and respect for the Housatonic River through education and actions that connect individual choices to environmental stewardship.
- b. Improve the quality of the surface water of the Housatonic River and its tributaries through practical pollution prevention education.
- c. Assist in the overall recovery of habitat restoration for species that depend on the health of the river, such as fish, frogs, turtles by changing human behavior.
- d. Assist in the overall recovery of biological resources, including fish, frogs and birds, through an engaged citizenry that chooses to use fewer chemical products on lawns and gardens.
- e. Improve public health within the watershed through reduced use of common toxic pesticides and herbicides that have been linked to cancer, Parkinson's disease, learning disabilities and other health problems.
- f. Develop a constituency and public support for policies that protect water quality.

## **2. Project**

1) Improve the public's connection to and respect for the Housatonic River through education and actions that connect individual choices to environmental stewardship.

### **Benefits:**

- a) 15-21 workshops with 10 – 25 attendees per workshop will educate 150 - 400 households in less toxic landscaping. If attendees talk to 3 other people, this direct and neighbor-to-neighbor contact is expanded to reach between 450 and 1,2000 people.
- b) Pilot neighborhood training: 3 sessions with 40+ people. Participants will likely talk with at least 5 other people, thus reaching 200 people. With this group, CET will quantify actual reductions in chemical use as feasible.
- c) 20-50+ landscapers will promote and use less toxic approaches with their clients.
- d) 2-4 retail establishments will guide customers toward less toxic products at the point of sale.
- e) Facility and town managers will care for larger landscapes with less toxic products.
- f) The public will become exposed to the toxic use reduction concepts through media, neighbors, and yard flags.

2) Improve the quality of the surface water of the Housatonic River and its tributaries through practical pollution prevention education.

**Benefit:** The human activities above will result in less direct run-off, drift and improper disposal of chemical fertilizers and pesticides into the Housatonic River and its tributaries.

3) Assist in the overall recovery of habitat restoration for species that depend on the health of the river, such as fish, frogs, turtles by changing human behavior.

**Benefit:** The reduced chemical burden of the Housatonic as a result of this project will allow species to recover more quickly.

4) Assist in the overall recovery of biological resources, including fish, frogs and birds, through an engaged citizenry that chooses to use fewer chemical products on lawns and gardens.

**Benefit:** The reduced chemical burden of the Housatonic as a result of this project will allow species to recover more quickly.

5) Improve public health within the watershed through reduced use of common toxic pesticides and herbicides that have been linked to cancer, Parkinson's disease, learning disabilities and other health problems.

**Benefit:** Those who change their own behaviors will be the primary beneficiaries of health benefits. Their neighbors will have reduced involuntary exposure from drift.

6) To develop a constituency and public support for policies that protect water quality.

**Benefit:** Through the synergies of project components, citizens of the Housatonic watershed will have a depth of understanding of the importance of river and watershed protection.

**Economic Benefit:** Over time through pollution prevention, towns will save money on the collection and proper disposal of household hazardous waste.

## 2. Project Implementation Plan.

**Current conditions:** At the present time, there is no focused effort to educate and empower citizens to use less toxic lawn and garden practices along the Housatonic River and its tributaries. In 2003, CET conducted a survey to identify behaviors, attitudes and barriers to behavior change related to the use of pesticides, herbicides and fertilizers on household lawns and gardens in Berkshire County. The survey design was based on the proven model of fostering sustainable behavior developed by Doug McKenzie Mohr<sup>6</sup> and the research questions were informed by the latest research on the use of chemicals in lawn and garden care. The survey was administered to 458 individuals using an opportunistic sampling methodology. Resource constraints prevented the use of statistically random or representative sampling; however an effort was made to obtain completed surveys from individuals living in towns throughout the County with varying levels of education, and from varying age groups. Surveys were distributed at local libraries, children's soccer leagues, large employers, local churches, daycare centers and at public events. The results were analyzed using statistical software. Although one can not make statistically significant conclusions from the results of a non-randomized survey, extreme differences were found between users of pesticides and non-users. Of the chemical users, most use chemicals in their lawns/gardens 1-3 times a year and few (5 or 6 respondents) use chemicals 6 or more times a year. Most common products were Miracle Grow, RoundUp, Scott's products (e.g. weed and feed). Respondents received most of their information about chemical garden products from the hardware store, landscaper or lawn care company.

Members of the group who use pesticides were significantly more likely to agree that:

- an attractive lawn is a weed free lawn;
- the presence of weeds in their yard were bothersome;
- the neighborhood looks less attractive when neighbors don't maintain a weed-free lawn;

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<sup>5</sup> McKenzie-Mohr, Fostering Sustainable Behavior : An Introduction to Community-Based Social Marketing (Education for Sustainability Series), New Society Publishers, Gabriola Island, British Columbia, Canada, 1999.

- they need to keep their lawn as green and weed-free as their neighbor.
- Chemical fertilizers are necessary for an attractive and healthy lawn
- Chemical products are safe.

People who use chemicals are less likely to believe that a beautiful lawn and garden are possible with the use of chemical fertilizers or herbicides, that pesticide use contaminates drinking water. Members of this group were more likely to believe that most of the dangerous pesticides have been banned by the government, and that chemical products in the lawn and garden become harmless within days after application. When we tested messages, those who used pesticides were most moved by the following messages:

- Chemical products from my lawn or garden are entering my well or local drinking water supply.
- 96% percent of chemical products for sale in the USA have not been tested for health effects on children.
- Wildlife, such as songbirds, are poisoned by chemicals used in lawn and garden care.

CET will use information from this survey to design effective messages that will reach pesticide users.

a) Overall approach. CET researched and developed program components by speaking with local watershed associations, University of Massachusetts Extension, Western Massachusetts Master Gardeners Association, TriTown Board of Health (towns of Lee, Lenox and Stockbridge), policy and program staff at MA Department of Agricultural Resources (DAR) and Massachusetts Department of Environmental Protection, and local retailers, landscapers and garden centers. CET looked at programs in Massachusetts municipalities (Wellesley and Newton) and across the nation (King County, Washington and California) to identify successful approaches that could be adapted to suit western Massachusetts. CET followed a pilot project by MA DAR that linked pesticide reduction with drinking water protection. CET talked to Philip Dickey, staff scientist at the Washington Toxics Coalition. This non-profit organization has been a leader in developing and evaluating programs to reduce pesticide use. Dr. Dickey noted that training landscapers in less toxic lawn and garden care is one of the most effective steps to reduce overall pesticide use<sup>7</sup>. He also referred us to a program in King County, Washington that is providing 3-part workshops in specific neighborhoods designed to improve water quality and protect salmon habitat. Sarah Little, coordinator for pesticide reduction in the Town of Wellesley, stated that her most effective outreach strategy was to work with the Board of Health to send an educational flier to all households in town. CET's work is also informed by principles of Community Based Social Marketing, an approach that looks at social factors that motivate sustainable behavior. Finally, this program is based on CET's experiences and success piloting elements of this education and training within the Housatonic River watershed in 2002-2003.

CET will use a multi-pronged approach to educate homeowners, nurseries, retailers, landscapers and municipalities about alternatives to toxic pesticide and fertilizers. Education and outreach will be targeted to reach specific audiences at times when they will be most receptive to the information. For example, training landscapers in alternatives to using toxic products will take place in the winter months when landscapers have the most time to attend a workshop. Workshops for homeowners will be scheduled between March and October, when people are most likely to think about their lawns and gardens. This project will also strengthen community partnerships between such entities as CET, the

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<sup>7</sup> Personal conversation, Dr. Philip Dickey.

Western Massachusetts Master Gardeners, local landscapers and towns. To encourage positive behavioral changes, CET will use positive reinforcement and recognition, such as obtaining personal commitment to change, distributing “reinforcing reminders” (earth friendly yard flags), recruiting neighborhood and community leaders and providing incentives that reinforce the message (e.g. soaker hoses).

The project will target (A) General public (B) Infrastructure of nurseries, garden centers, landscapers and institutional facility managers; and (C) Municipalities.

Target audiences and program services:

**Task A: General Public**

While farmers and professional landscapers must get trained to apply pesticides, the homeowner receives no such training. Misapplication or improper disposal can cause significant environmental damage to a river or lake system. Reaching the homeowner is essential in changing the demand for these products and practices. Retailers, landscapers and nurseries will respond if customers ask for more environmentally sensitive products and practices. Those engaged in environmental education understand that brochures and other educational materials are not effective in changing behavior. In order to be successful in changing behaviors, tools to reinforce and support behavioral change through recognition, credibility of message and peer support need to be developed. Messages need to be delivered by respected community leaders, neighbors, and other credible sources. CET will develop “flags” or other forms of public recognition for individuals and neighborhoods to highlight less toxic practices. CET will also prepare fact sheets for hardware stores and garden centers on responsible pesticide usage and disposal so there is helpful information at the time of inquiry and “point of purchase”.

Children are the “canary in the mines” when it comes to exposure to toxic products. In Fall 2001, CET began a toxic use reduction program that targeted families with young children. It has been our experience (corroborated by Doug Rice, Landscape Architect, King County, Washington) that people are more likely to change behavior in order to protect their children and grandchildren’s health than if they hear only an ‘environmental’ message. In 2004, CET launched a program wherein families with newborns have received an environmental health assessment and education from a nurse visiting the home to conduct a medical assessment of mother and baby. Since the project began, over 700 parents have learned practical ways to reduce their child’s exposure to common household toxins and nurses assess the home for environmental risks. CET’s experience confirms that connecting toxics use and public health is an extremely effective approach to motivating change in purchasing and disposal habits. With new parents, nurses will re-enforce a message of less toxic chemical use, including the benefits of Integrated Pest Management (IPM).

For ‘do it yourselfers’ or those that hire professionals, the messages and techniques need to emphasize that using less toxic chemicals can be less expensive, healthier and more beneficial to the environment. New homeowners or those moving to a rural area are receptive to new behaviors and community expectations. The distribution of “earth friendly yard” flags will help create new community expectations about lawn care. CET and project partners will demonstrate that less toxic practices can result in beautiful lawns and gardens. IPM practices include mulching, using compost, removing weeds manually and leaving grass clippings on lawns. Over time, cultural assumptions and expectations about the ideal lawn will begin to change. In each venue, the public will be informed of

the importance of proper and safe disposal of toxic pesticides and specific information about local collection opportunities. This project will complement the work of the South Berkshire Household Hazardous Waste (HHW) Collaborative and City of Pittsfield HHW collections. Households will have an affordable way to properly dispose of chemical fertilizers and pesticides. This project will result in fewer purchases of chemical garden products.

CET will adapt a pilot a successful neighborhood IPM training program that has been developed in King’s County, Washington. CET will work with City of Pittsfield DPW to identify neighborhoods with the most impact on the Housatonic River. CET will conduct intensive and extensive outreach within this target neighborhood, promoting a 3-part training program. Direct mail, follow up phone calls and other methods will encourage participation. Speakers will train participants in the main aspects of IPM, including selecting the right plants, soil preparation, correct watering practices and less toxic pest controls. Pre and post surveys of this group will help document behavior changes. Earth-friendly yard flags will be distributed to both serve as a reminder of IPM values and will serve as a public commitment to new practices.

CET will conduct a public education campaign designed to increase awareness about less toxic approaches to lawns and gardens by carrying out the following activities as appropriate:

#### Activities

- X Presentations to garden clubs and other audiences;
- X Work with Garden Clubs and Pittsfield Beautiful to highlight non-pesticide lawns/gardens on tours;
- X Provide public workshops on IPM, ecological lawns and gardens and composting co-sponsored by nurseries and garden centers;
- X Conduct targeted neighborhood outreach for 3-part training in IPM, including outreach, direct mail, follow up and evaluation;

#### **Task B. Institutional Facility Managers, Landscape Contractors, Retailers**

Institutional grounds (e.g. parks, cemeteries, golf courses, resorts, cultural institutions, colleges) have a significant impact on water quality based on how they are managed. Some golf courses are required by local Conservation Commissions to use either ‘Best Management Practices’ or IPM. However, many facilities do not have protocols based on environmentally sensitive practices. CET will provide a series of training opportunities for this audience on IPM and ecologically sensitive alternatives. Managers will be encouraged to think about ways that they can enhance their image by promoting ‘green landscaping’ practices. Some institutions and many homeowners are served by smaller landscape contractors who may not have received any pesticide training, lack basic information about IPM or are reluctant to try new techniques or products. Training provided by respected local authorities will overcome these barriers. Nurseries and garden centers will assist with outreach to their current commercial and institutional customers, including landscape contractors, and serve as venues for these workshops to help their customers select less toxic products. While training opportunities exist in Massachusetts, they are almost exclusively offered to the east and require a financial and as well as travel commitment. When CET conducted these workshops in 2003 and 2004, over 50 landscapers were very pleased with the content and indicated an interest in additional in-depth sessions on soils, pest identification and plant selection.

Activities for landscapers, facility managers

- Conduct 1-2 IPM training workshops per year for facility managers responsible for grounds management and landscape contractors.

Retailers: From the survey CET conducted on pesticide use, we learned that many chemical pesticide users get product information from hardware stores, garden centers and landscapers. In order to effectively reach a customer at a critical decision point, CET and Master Gardeners will train sales staff at garden centers, nurseries, hardware stores, and other businesses that sell garden and lawn care products. The training will cover basic principles of IPM to enable retail staff to help customers consider less toxic alternatives. Retail staff will learn to recommend that customers read labels of chemical products, especially cautions and correct doses, and to communicate that leftover chemicals need proper disposal.

Activities for retail staff/stores

- On-site workshops for retail staff on pesticides and lawn and garden products;
- Publicize IPM workshops
- Create store displays or areas of less-toxic products
- Evaluate effectiveness

**Task C. Municipalities**

Municipalities along the Housatonic River can play a leadership role in demonstrating the importance of environmentally sensitive practices that are protective of water resources and public health. Towns manage parks, cemeteries, schoolyards and playing fields where herbicides and pesticides may be used.

In Wellesley and Newton MA, Boards of Health have taken a leadership role in educating the public about the health and environmental risks associated with outdoor pesticide use. These municipal Boards have local regulatory power and the power of the bully pulpit. They are perceived as credible and authoritative. The Tri-Town Board of Health (Lee, Lenox Stockbridge) oversees training in best management practices for septic system installers county-wide. These contractors also often provide landscaping services. CET will work with Tri-Town to get information about IPM to these contractors.

Activities:

- Meet with Boards of Health in communities along the Housatonic River to explore the potential role of the Board of Health in promoting and/or establishing policies and practices that reduce pesticide use and promote IPM;
- Distribute IPM information to businesses that participate in the Tri-Town Health Department's certification program for septic system construction;
- Conduct outreach to Town Departments about IPM workshop schedule;
- Highlight IPM opportunities on the state contract;
- Educate about safe disposal of toxic products including disposal of pesticides that are no longer being used.

Project Schedule: Task A: General Public, Task B: Retailers, Landscapers; Task C: Towns

June 2007 – October 2007: Collect and adapt educational materials. Adapt existing presentation on IPM for the general public, update and adapt training for retail staff. Work with City of Pittsfield

DPW to identify target neighborhood to implement pilot neighborhood outreach project. Develop outreach strategy for neighborhood, plan workshop curriculum and schedule. Milestones: **Task A:** Educational materials, presentations and training curriculum developed. Neighborhood identified. **Task A:** Pilot neighborhood identified. Outreach strategy in place.

October 2007 – February 2008: Develop schedule, conduct outreach and train landscapers, facility managers and town employees in IPM, as well as in-depth sessions on pest identification, soils, plant selections. Meet with 1-2 Boards of Health. Implement neighborhood outreach strategy. Schedule 3-part neighborhood training including logistics of place, speakers, door prizes. Milestones: **Task B:** 2 trainings conducted. Evaluation by attendees. **Task C:** Meetings and next steps with Boards of Health.

January 2008 – March 2008: Conduct training for retail staff. Work with retail staff in 1-2 locations to develop a store display or a section of the store that will highlight less toxic products. Milestones: **Task B:** 10-20 retail staff trained. 1 store with in-store display or new area highlighting less toxic garden products.

February 2008 – October 2008: Publicize and conduct IPM and composting presentations at senior centers, churches, garden centers, community centers, and community gardens. Information about less toxic landscaping practices distributed to households during local hazardous waste collections. Milestones: **Task A:** 5-7 presentations given, 40+ people educated. 100+ people given information during HHW collections. 7 media stories reaching over 40,000 people. **Task C:** Follow up steps with Boards of Health completed and documented.

March 2008 – July 2008: Conduct 3-part neighborhood training in Pittsfield and follow-up evaluation. Distribute Pittsfield focused materials. **Task A:** 3-part neighborhood training conducted. 50+ residents reached. Follow up evaluation completed.

October 2008 – February 2009: Based on evaluations from previous landscaper workshops, develop schedule, conduct outreach and train landscapers, facility managers and town employees in IPM, as well as in-depth sessions on pest identification, soils, plant selections. Outreach to towns on IPM opportunities on state contract. Milestones: **Task B:** 2 trainings for professional landscapers. Evaluation by attendees. **Task C:** 1-2 towns learned about IPM opportunities on the state contract.

January 2009 – February 2009: Conduct training for retail staff. Work with retail staff in 1-2 locations to develop a store display or a section of the store that will highlight less toxic products. Milestones: **Task B:** 10-20 retail staff trained. 1 store with in-store display or new area highlighting less toxic garden products. Sales receipts evaluated from one garden center business.

March 2009 – October 2009: Publicize and conduct IPM and composting presentations at senior centers, churches, garden centers, community centers, and community gardens. Information about less toxic landscaping practices distributed to households during local hazardous waste collections. Milestones: **Task A:** 5-7 presentations given, 50+ people educated. 100+ people given information during HHW collections. 7 stories in local media reaching over 40,000. **Task C:** Pittsfield focused materials distributed.

October 2009 – February 2010: Conduct outreach and train landscapers, facility managers and town employees in IPM, as well as in-depth sessions on pest identification, soils, plant selections.

Milestones: **Task B:** 2 trainings conducted. Evaluation by attendees.

January 2010 – February 2010: Conduct training for retail staff. Work with retail staff in 1-2 locations to develop a store display or a section of the store that will highlight less toxic products.

Milestones: **Task B:** 10-20 retail staff trained. 1 store with in-store display or new area highlighting less toxic garden products.

March 2010 – May 2010: Publicize and conduct IPM and composting presentations at senior centers, churches, garden centers, community centers, and community gardens. Information about less toxic landscaping practices distributed to households during local hazardous waste collections. Milestones: **Task A:** 3 presentations given, 50+ people educated. 100+ people given information during HHW collections. 5 stories in local media reaching over 40,000.

March 2010 – June 2010: Project evaluation and next steps. CET will compile and analyze project results (e.g. participants, evaluations, follow up surveys, distribution yard flags, and store product sales). Milestones: **All tasks:** Completed evaluation. Distribute project results (e.g. meeting with community leaders, media coverage).

Agreements/Easements/Permits: Not applicable.

Long-term effectiveness & sustainability: CET will target households and neighborhoods that have the most direct impact on the Housatonic River, thus maximizing the benefit to the Housatonic River and its restoration. This project uses a “push-pull” strategy<sup>8</sup> to raise community awareness about the link between the river’s health and human health. It offers a positive vision of a healthy and vibrant home landscape that is possible without injuring the river and the species that depend on it. By targeting households, and the authorities residents turn to for assistance in landscape issues (e.g. retail staff, landscapers, neighbors) synergistic momentum begins. In addition, we will change behaviors at some of the larger landscapes within the watershed, such as resorts, colleges, schools and cultural institutions that have a larger impact on tributaries and the main stem of the river. When retail store staff, landscapers, facility managers and residents know how to find additional resources, they carry the knowledge with them and share it with others. Community-based social marketing practice demonstrates that a multi-year effort is critical in order to achieve real success in changing residents' lawn care behaviors and protecting the river and water quality. Most people need repeated exposure to a message and significant reinforcement in order to change. Initially, the most motivated individuals, who were already interested in protecting the river but lacked either information or empowerment, will change their behaviors. Then, after these changes can be publicized and reinforced in the community to become a "norm", other will follow if significant outreach and education, along with opportunities to commit to change, are provided. King’s County, WA Water Resources staff reported that a single homeowner who attended one landscape workshop talked to 5 other people about it. The presence of earth-friendly yard signs will also create visibility and peer pressure toward less-toxic alternatives. These varied methods will extend the reach of this project beyond the individuals actually served. As landscapers, retail outlets and individuals change practices, they will influence how more and more acres of landscapes are managed.

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<sup>8</sup> Success Stories, Social Marketing Institute: <http://www.social-marketing.org/success/cs-hpylori.html>

Coordination with on-going restoration: Project work in Pittsfield will complement the on-going restoration of the river by lessening the toxic burden reaching the East and West branches as well as the confluence through direct run-off, storm drains and improper disposal. No project activities will hurt the “rest of river” restoration decisions. Instead, as we lessen the toxic load, it will contribute to the overall restoration of the ecology of the Housatonic River.

Existing Plans: As the Housatonic River Restoration Plan Update<sup>9</sup> notes, “A river free of PCBs speaks to the heart of the restoration of the river, but for many that is not enough. There are significant pressures and pollutants that need to be addressed for the river to become a healthy system.” Many who attended the HRR Plan Update meetings expressed concerns about “preventing further damage.” Educating landowners along the river was noted as a priority. As Ruth Wheeler of Lenox noted, “Landowners need to be aware of the chemicals they use and how quickly those chemicals they use to get rid of bugs can get into the river. We need a concerted effort to educate people how their actions impact the river.”

### Technical/Technological Feasibility

Methodologies used elsewhere: CET tested elements of the proposed project in 2002-2003, such as training landscapers, facility managers, municipal staff as well as workshops on integrated pest management and composting for the general public, earth-friendly yard signs, and cooperation with local towns within the Housatonic River watershed. The proposed project has been modified in part as a result of evaluations conducted at the time. The pilot project to target a Pittsfield neighborhood and conduct extensive and intensive outreach (direct mail, follow up calls to registrants) and conduct a three- part training is based on successful work in King County, Washington. In years 2 and 3, as development costs decrease, CET will be able to serve more neighborhoods.

c. Certainties and uncertainties Community Based Social Marketing is an increasingly accepted methodology that uses the tools of the social sciences, particularly psychology, to identify barriers and benefits. This process involves a literature search, focus groups or direct observation and then a survey. Social marketing employs techniques that build individual and group commitment, prompts, changing norms, communication from respected and credible authorities and finally incentives. These techniques have been in use for the past ten years and have been shown to be more effective in changing behavior than traditional environmental education that has depended on handing out brochures or informational fliers.

d. Other uncertainties: CET has the technical capability to successfully achieve project goals. CET has an excellent reputation based on our track record of designing and implementing successful innovative programs. In addition, we are known for providing practical and credible science based information. Through participation in regional and national conferences and networks, we have access to state of the art projects in other parts of the Commonwealth and the country and this includes adapting successful strategies, materials and messages to reach the citizens of the Housatonic River watershed.

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<sup>9</sup> Housatonic River Restoration Plan Update, October- November 2003, prepared for Housatonic River Restoration, pages 18-22.

e. Technical complications: Not applicable.

Monitoring/Evaluation. CET will use both quantitative and qualitative approaches to conduct on-going monitoring and project evaluation. The goal of this project is to improve water quality through behavior change. CET will use several methods to quantify changes in behavior as a result of this project and based on those changes, the reduction of toxics into the river.

General Public: Pilot Project: CET will conduct the pilot project in a neighborhood of “small, lovely yards most likely the result of chemical inputs” and where runoff will more quickly reach the Housatonic River. Ideally, the project would test the water for chemical fertilizers (phosphorous) and pesticides to determine whether CET’s activities reduced those inputs. This is not feasible, due to the number of variables to control for, including the slow release of phosphorous into surface water and the dispersed nature of the use of fertilizers. When King County WA considered monitoring catch basins, they found that pesticide and fertilizer levels could be from dispersed sources and even several years old. When they looked for data across the country that would show changes in pesticide or fertilizer levels through water quality monitoring, they found nothing and advised us to work on changing the behavior of as many people as possible<sup>10</sup>. As feasible, CET will quantify reductions by making assumptions about the amount of pesticides and chemicals entering the rivers. We will work with nurseries to create a “baseline” for chemical fertilizer and pesticide use by a typical household. For example, some lawn garden systems recommend four fertilizer treatments a year, along with weed and feed, pre-emergent herbicide and lawn insecticides. If, for example a household purchases a bag of fertilizer designed to cover 5,000 square feet (approximately 20 pounds), and 25% is phosphorous of which 3% is quickly water soluble, then approximately 1/15 of a pound is immediately available to wash away. Additional amounts would take longer.

CET will use pre-tests, post-tests, follow-up surveys, workshop evaluations, numbers of flags displayed on lawns and pledges to quantify the reduction of use of toxic products.

Retailers: Ward’s Nursery in Great Barrington will track its purchases and sales of a group or specific items to identify trends among its customers. It will analyze whether sales of chemical fertilizers and pesticides have increased or decreased and whether sales of “less toxic products” have increased. Ward’s Nursery will distribute a survey or allow CET to conduct a survey of its customers to learn more about the influences on their purchase. This information will be useful both to gauge the depth and breadth of this project’s outreach and education and also to confirm or identify where people are most likely to get information and make decisions on their purchases and lawn management strategies. CET is confident that a Pittsfield nursery will participate in this evaluation process so that we have sources of information from two nurseries serving customers with different demographic characteristics.

b. CET will offer “point of purchase” educational information to local retailers. CET will track participation, placement of information, willingness to offer retail staff training provided by CET, and other steps that have been taken to shift their sales and education toward less toxic products and practices.

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<sup>10</sup> Conversation with Doug Rice, King County, Washington, March 2006.

General Public – Education: As above, CET will acquire baseline information at workshops, followed by an evaluation, practices they plan to begin or change. Other evaluation tools include:

- Number of yard flags distributed and displayed as an indicator of public support.
- Number of participants at workshops and a follow-up evaluation regarding the content, changes in practices and concerns
- Work with Master Gardeners to track the number of referrals and types of questions received.
- Survey area nurseries to identify choices for certain products including information provided through project presentations, newspaper articles and outreach
- Compile media articles, radio and television show forums and other ways that this program results in broad based education through direct contact or use of educational materials.

Landscapers, retail staff, facility managers

- CET will track the number who attend presentations, their motivation for participating, evaluations of the usefulness, and needs for additional information and assistance.
- CET will conduct follow-up telephone survey to identify whether specific practices have changed.

Parameters: 1) CET will define the existing conditions based on the pesticide survey conducted in 2003 and will better understand the current conditions as we conduct a pre-test for project participants. The pre-test will identify current attitudes and behaviors. This data will be compared to post-test or follow up surveys. CET’s survey and focus groups conducted by the regional government for metropolitan Seattle<sup>11</sup> make it clear that “the primary barriers to the use of alternatives to chemicals lie in the perception that chemicals are easier to use, save time and are more effective than other methods, especially when dealing with what the participants perceive to be serious problems: moss, ants, slugs, weeds in the gravel driveway or having a nice green lawn. Participants also think their own use is small and not consequential.” CET will document attitude and/or behavior changes in at least 500 people.

2) Currently, households contracting with a commercial landscaper that applies pesticides, by law, must place a caution sign on the lawn. Over the past 3-4 years, in the residential neighborhood where CET has its office, staff have observed an increasing proliferation of homes using chemical pesticides based on the use of these caution signs. In the target neighborhood, CET will quantify the number of households using chemical pesticides at the beginning of the project and will document changes in that number as well as the number of households in the target neighborhood who put up “earth friendly” yard flags.

Contingency Plan: We will adapt our outreach, refine our messages or make programmatic adjustments to ensure that goals are met.

Evaluation: At each training, CET will give a quick pre-test to ascertain attitudes and or practices of participants and then will either conduct a post-test at the end of the training as part of the evaluation or will conduct a quick follow up survey to ascertain to what degree participants (homeowners, professionals, retail staff) have changed attitudes and practices. As noted above, CET will develop baseline sales information from Ward’s Nursery in Great Barrington and track sales of certain indicator products (both chemical and less toxic). As feasible, follow ups with landscapers will

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<sup>11</sup> Executive Summary, produced for King County, Washington, by Research Into Action, Inc .

identify changes in practices, new marketing or advertising that promotes less toxic landscape approaches.

Existing Water Quality Monitoring: To the extent feasible, CET will use existing data from the Housatonic Valley Association's water quality monitoring and analyze trends over the course of several years to determine if nutrient levels are changing. HVA reports that starting Spring 2006, once phosphorous is detected, they will use an additional process to determine if the source is from laundry detergent. This will help narrow the potential sources.

#### Qualifications of Applicant and Project Team.

**Applicant:** Established in 1976, CET, a non-governmental 501(c)(3) organization is engaged in work that demonstrates and promotes practical, affordable solutions to the environmental challenges we face each day. CET's mission is "to research, develop, demonstrate and promote those technologies which have the least disruptive impact on the natural ecology of the Earth." With 30 full and part time professional staff working from offices in Pittsfield, Northampton and Springfield, CET provides services in the areas of recycling, toxics use reduction, waste reduction, composting, energy efficiency and renewable energy including program design and delivery, education, training, technical assistance, marketing, public relations, research, evaluation and field services. For 30 years, CET uses innovative approaches to overcome institutional barriers in order to institutionalize environmental solutions. Based on direction from the community, we have developed environmental endeavors that are successful in the marketplace and promote sustainable communities, including business recycling cooperatives, on-farm composting of commercial food waste and municipal collection of household hazardous waste. CET has already developed an "earth friendly" yard flag, training materials and curricula that teach both IPM and the health and environmental impacts of chemical pesticide use. This project would allow us to improve and continue to provide these services over several years, thus expanding and extending the impact of the education.

#### Project Staff:

**Laura Dubester, CET Co-Director** - Ms Dubester is responsible for program design, development, administration and evaluation. She is the liaison with the Board of Directors, community leaders and program funders. Ms. Dubester has developed and directed many of CET's renewable energy and waste management programs that provide education and technical assistance. Ms. Dubester has overseen the establishment of the Berkshire Renewable Energy Collaborative, *New England GreenStart* and business recycling services in our region. She will oversee this project.

**James Cahillane, Waste Management Specialist** – Mr. Cahillane directs CET Recycling Services and manages CET's waste reduction, recycling and Household Hazardous Waste programs in the Berkshires. He is the Chair of the Lenox, MA Environmental Committee that is working to reduce engine idling. Prior to joining CET, James was the Resource Conservation Manager for the University of Chicago. He has presented at regional and national conferences on various waste prevention and recycling issues. Mr. Cahillane will oversee the daily management of this project.

**Ruth Dinerman, Director of Communications** - Ms. Dinerman researched and developed CET's pesticide reduction project and CET's environmental health initiatives. She also helps develop CET's waste and renewable energy programs. Before coming to CET in 2001, Ms Dinerman worked for the Appalachian Mountain Club (AMC) where she created an innovative program to train

recreational boaters to assess river health and water quality. She also addressed water quality and land protection issues through the relicensing of five hydropower dams on the Housatonic River in CT. She serves on the Executive Committee of the Housatonic River Restoration. She has a B.A. from Oberlin College and an M.F.A. in Fiction from Brooklyn College of the City University of New York. She will help with message development, media outreach and development of educational materials.

**Sarah Shepard, Landscape Designer** - Ms. Shepard has designed and presented information to a wide range of audiences about integrated pest management and healthier lawn and garden care. She has served as an expert on a number of CET's pesticide reduction efforts and designed CET's "Earth Friendly Yard" flag. She taught environmental planning at Williams College and ecology for gardeners at the Berkshire Botanical Garden. For 14 years, she has served on the board of the Hoosic River Watershed Association (HooRWA) where she was involved with HooRWA's river water quality monitoring and greenway development projects. Ms. Shepard owns Sarah Shepard Landscape Design, a business that specializes in ecological garden design. Ms. Shepard has a Master's Degree in Landscape Architecture from the Univ. of Massachusetts, Amherst; a Masters Degree in Environmental Management from Duke University and a B.S. in Biology from Trinity College. Ms. Shepard will oversee the development of training curriculum and will present on IPM issues.

Administrative capacity. CET's Board: In 2002, CET expanded its Board of Directors to nine members. The Board includes Paul Gavriety, Berkshire County ARC, Vicky Singer, Berkshire Enterprises (retired), Alan Silverstein, CET co-Director, Ruth Blodgett, Berkshire Health Systems, Laura Dubester, CET co-Director, Rita Kasky, Gould Farm, Dr. William Moomaw, Tuft University, Dr. Elizabeth Neale, Conte Community School and Gred Ward, owner of Ward's Nursery. Two years ago, the Board charged staff to develop a strategic plan. A working strategic plan is in place.

Management: Co-directors Alan Silverstein and Laura Dubester and Associate Director, Nancy Nylen have each been employed by CET for over 20 years. John Majercak, Associate Director, has been with CET for fifteen years. These managers provide stability for the organization, especially through longstanding relationships with community leaders, policymakers and constituents. Charlie Browne, Fiscal Administrator, a Certified Public Accountant, has worked at CET for over 5 years. CET's management team possesses advanced degrees in Public Administration, Accounting, Secondary and Environmental Education. Fiscal: CET's co-directors and fiscal manager monitor the operating budget on a monthly basis. CET's fiscal manager produces reports for each project and the organization as a whole. Management staff analyze project costs, financial trends, allocation of time and expenses, cash-flow and types and sources of revenue. Each project has a separate budget, which is carefully monitored by project and the fiscal managers. The Board is apprised of CET's financial situation at its bi-monthly meetings.

Outside resources: CET will work with the Western Massachusetts Master Gardeners Association (WMMGA). This non-profit organization is comprised of trained Master Gardeners who must graduate from a demanding study program and volunteer many hours of working with the public to receive a Master Gardener Certificate. The program originated at the Cooperative Extension Service of the State University System. In 1989, the program ended at UMass due to funding problems, and a dedicated group of graduates organized and continued the program independent of the University. Trained volunteers will work with CET to give presentations to the general public.

CET will contract with Ron Kujawski to conduct trainings for landscape professionals. Mr. Kujawski received his B.S., M.S., and Ph.D. in Biological Sciences from the State University of New York. After five years of developing and directing the Environmental Studies program at Simon's Rock College in Great Barrington, he moved on to UMass Extension. Retired now after 25 years as a specialist in landscape, nursery, and urban forestry, Mr. Kujawski spends his time as a horticultural consultant, writer, and lecturer.

**TABLE 1. HOUSATONIC RIVER NRD FUNDING ALLOCATION BY FISCAL YEARS <sup>12</sup>**

<b>PROJECT TITLE:</b>	<b>Less Toxic Landscapes: A Healthier Housatonic River</b>							
<b>APPLICANT NAME:</b>	<b>Center for Ecological Technology (CET)</b>							
<b>EXPENSE CATEGORY</b>	<b>FISCAL YEAR 1</b>		<b>FISCAL YEAR 2</b>		<b>FISCAL YEAR 3</b>		<b>FISCAL YEAR 4</b>	
	<b>Housatonic River NRD Funds</b>		<b>Housatonic River NRD Funds</b>		<b>Housatonic River NRD Funds</b>		<b>Housatonic River NRD Funds</b>	
A. SALARIES	\$41,582		\$41,582		\$41,582		-	
B. EMPLOYEE BENEFITS	\$12,554		\$12,554		\$12,554		-	
C. CONTRACTED SERVICES	\$1,500		\$1,500		\$1,500		-	
D. SUPPLIES, MATERIALS & EQUIPMENT	\$3,200		\$3,200		\$3,200		-	
E. TRAVEL	\$850		\$850		\$850		-	
F. Postage	\$878		\$878		\$878		-	
G. Advertising	\$250		\$250		\$250			
H. Space Rental	\$600		\$600		\$600			
G. OTHER (Indirect@ 17.53%)	\$10,766		\$10,766		\$10,766		-	
<b>TOTAL BY FISCAL YEAR</b>	<b>1</b>	\$72,180	<b>2</b>	\$72,180	<b>3</b>	\$72,180	<b>4</b>	-
<b>GRAND TOTAL (sum of boxes 1+2+3+4)</b> [This sum is the total NRD fund request and should match Part A, Budget Summary, Box 1]					\$216,540			

<sup>12</sup> 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**

<b>PROJECT TITLE:</b>	<b>Less Toxic Landscapes: A Healthier Housatonic River</b>							
<b>APPLICANT NAME:</b>	Center for Ecological Technology (CET)							
TASK <sup>13</sup>	HOUSATONIC RIVER NRD FUNDS		OTHER CONTRIBUTIONS				TOTAL COST BY TASK	
			COMMITTED		NOT COMMITTED			
1- General Public Education	\$21,753 x 3 years = \$65,259		\$1,500 (WMMGA –in kind)  See Complementary Programs (budget narrative)		\$30,000 (USDA) \$750 (Facilities-In-kind)		\$97,509	
A2-. Public Education – Pittsfield Neighborhood Training	\$25,564 x 3 years = \$76,692		See Complementary Programs (budget narrative)		\$750 (Facilities-In-kind)		\$77,442	
B. Landscapers, Facility Managers and Retail Staff	\$16,280 x 3 years = \$48,840		\$3,000 (Ward’s Nursery –In-Kind)				\$51,840	
D. Municipalities	\$8,583 x 3 years = \$25,749				\$30,000 (USDA)		\$55,749	
<b>TOTAL BY FUNDING SOURCE</b>	<b>5</b>	\$216,540	<b>6</b>	4,500	<b>7</b>	\$61,500	<b>8</b>	<b>GRAND TOTAL</b> \$282,540

**NOTES:** Box 5 should be the same as the Grand Total indicated in Part E: 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

<sup>13</sup> The listed tasks should correspond with information provided in the Project Implementation Plan.

**BUDGET NARRATIVE BY TASK – YEAR 1****BUDGET BY TASK**

(Year 1)

Line Item	TOTAL A+B+C	A-TOTAL	A1)	A2)	B	C
		GENERAL EDUCATION.	Pittsfield Pilot	Education /Presentations	LANDSCAPERS/ RETAIL	MUNICIPALITIES
PERSONNEL	\$36,582	\$23,492	\$12,867	\$10,625	\$8,091	\$4,999
VISTA	\$5,000	\$3,850	\$1,925	\$1,925	\$875	\$275
Fringe (CET staff only)	\$12,554	\$8,061	\$4,415	\$3,646	\$2,777	\$1,716
<b>Total Personnel/Fringe</b>	<b>\$54,136</b>	<b>\$35,403</b>	<b>\$19,207</b>	<b>\$16,196</b>	<b>\$11,743</b>	<b>\$6,990</b>
Travel	\$850	\$425	\$213	\$212	\$213	\$212
Contractual	\$1,500	\$1,000	\$500	\$500	\$500	
Advertising	\$250	\$250	\$250			
Supplies-program	\$1,200	\$800	\$400	\$400	\$300	\$100
Supplies - displays/flags	\$2,000	\$1,000	\$400	\$600	\$1000	
Postage	\$878	\$780	\$780		\$98	
Workshop Space Rental	\$600	\$600		\$600		
<b>TOTAL</b>	<b>\$61,414</b>	<b>\$40,258</b>	<b>\$21,750</b>	<b>\$18,508</b>	<b>\$13,854</b>	<b>\$7,302</b>
<b>OTHER: INDIRECT</b>	<b>\$10,766</b>	<b>\$7,058</b>	<b>\$3,813</b>	<b>\$3,245</b>	<b>\$2,428</b>	<b>\$1,280</b>
<b>TOTAL BUDGET</b>	<b>\$72,180</b>	<b>\$47,317</b>	<b>\$25,564</b>	<b>\$21,753</b>	<b>\$16,280</b>	<b>\$8,583</b>

**Personnel:** Salary rates and percentage of time spent on the project may vary, but total personnel costs will not exceed **\$41,582** per year.

	Hours	Rate	Total
Laura Dubester	90	\$33.33	\$3,000
Ruth Dinerman	170	\$31.48	\$5,352
James Cahillane	190	\$25.90	\$4,922
To be determined	1050	\$17.22	\$18,083
Sarah Shepard	275	\$19.00	\$5,225
Intern or AmeriCorps*Vista			\$5,000
<b>TOTAL</b>	<b>1,775</b>		<b>\$41,582</b>

**Fringe:** The fringe rate is calculated at 34.32% percent of personnel costs (excluding Intern/AmeriCorps\*VISTA). Fringe benefits cover paid health insurance, paid leave (sick, holiday and vacation), FICA, workman's compensation and Massachusetts unemployment insurance, Massachusetts Health Insurance and CET pension benefit.  $\$36,582 \times 34.32\% = \$12,554$ .

**Contractual:** This item is for honoraria for Western Massachusetts Master Gardeners Association (5 X \$100 = \$500) and Ron Kujawski (\$1,000 for 2-4 training sessions). **Total: \$1,500.**

**Supplies:** Office/Workshop/Resource/Displays/Program Materials: Consumable supplies (paper, copying, envelopes, binders) as well as outreach and educational materials (flyers, surveys, brochures, handouts, incentives); displays; and yard flags. **Total: \$3,200**

The budget for program materials and supplies is: \$1,200

The budget for educational displays for nurseries and public places is: \$1,000

The budget for "Earth Friendly Yard Flags" is: \$1,000

**Travel:** Most travel will take place in Pittsfield and south Berkshire for outreach and program activities (2-4 trips/ week @ about 25 miles). Travel is reimbursed at a rate of \$.34 per mile. The total amount budgeted for travel is as follows: 2500 miles @ \$.34 = **\$850**.

**OTHER:**

**Advertising:** This category covers low-cost advertising in community weekly or monthly newspapers and newsletters totaling **\$250**.

**Rent:** Estimated cost for space for workshops and presentations is **\$600**.

**Postage:** Program postage and bulk and direct mailings to target groups. **Total = \$878**

Direct postage to “pilot program” households: 2000 households x \$.39 = \$780

Direct postage for outreach to landscapers, facilities managers and program activities: 250 x \$.39 = \$98.

**OTHER - Indirect**

CET has received a provisional rate of 17.53% from USDA for the Indirect Cost Negotiation Agreement effective November 1, 2005 - October 31, 2006. This is the rate used in preparing this budget.

Indirect @ 17.53%: \$10,766

CET anticipates program development costs will be reduced in years 2 and 3 and does not propose an escalator for these years.

**Other Contributions:** For the past 15 years, CET has received funding from USDA Rural Development for education in rural western Massachusetts towns to decrease the volume and toxicity of the waste stream. CET has applied for funding for 2006-2007. A portion of these funds would be used to carry out education about toxics use reduction and pollution prevention. **Estimate:** \$20,000 per year x 3 years = \$60,000

**In-Kind:** Ward’s Nursery will assist in evaluation by analyzing purchases and sales of certain products (or type of products). CET plans to recruit a Pittsfield nursery as well. Estimated value - \$1,000 x 3 years = \$3,000; Western Massachusetts Master Gardeners will assist in reviewing program materials and workshop design. Estimated value - \$500 x 3 years = \$1,500; Community facilities will donate space for workshops and other educational activities. Estimated value - \$500 x 3 years = \$1,500.

**Complementary Programs (not direct to this project):** CET currently coordinates household hazardous waste collection events for South Berkshire Regional HHW Collaborative and the City of Pittsfield. Program activities will encourage residents to participate in these municipal programs. At collection events, CET will distribute information about less toxic alternative practices and products. Though independent, stand alone programs (with budgets set annually), CET, SBHHW Collaborative and City of Pittsfield goals and efforts are mutually supportive.

South Berkshire Household Hazardous Waste Collaborative: \$18,000 x 3 years = \$54,000

City of Pittsfield: Collection events: \$18,500 x 3 years = \$55,500

The MA SubCouncil will review the information provided and determine whether further information is required.

**CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS**

Project Name: Less Toxic Landscapes: A Healthier Housatonic River

Applicant: Center for Ecological Technology (CET)

<b>Impact Category</b>	<b>Impact</b>	<b>No Effect</b>	<b>Minimal Adverse Impacts*</b>	<b>Significant Adverse Impacts*</b>	<b>Beneficial Impacts*</b>	<b>Mitigation Required*</b>	<b>Permit or Approval Required*</b>
<b>Environmental</b>	Air quality impacts	X					
	Instream flow impacts	X					
	Surface water quality impacts				X		
	Sediment quality impacts				X		
	Soil quality impacts				X		
	Groundwater quality impacts				X		
	Wetlands quality and services				X		
	Diversity and abundance of aquatic species				X		
	Diversity and abundance of terrestrial wildlife species				X		
	Diversity of plant communities	X					
	Other:						
	Other:						

The MA SubCouncil will review the information provided and determine whether further information is required.

**CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS**

Project Name: Less Toxic Landscapes: A Healthier Housatonic River

Applicant: Center for Ecological Technology (CET)

<b>Impact Category</b>	<b>Impact</b>	<b>No Effect</b>	<b>Minimal Adverse Impacts*</b>	<b>Significant Adverse Impacts*</b>	<b>Beneficial Impacts*</b>	<b>Mitigation Required*</b>	<b>Permit or Approval Required*</b>
<b>Social</b>	Impacts on minority or low income populations				X		
	Impacts on local sense of community and well being				X		
	Impacts on aesthetics	X					
	Impacts on public health or safety				X		
	Impacts on recreational activity	X					
	Impacts to Native American Trust Resources	X					
	Impacts on non-Tribal cultural sites	X					
	Impacts on education					X	
	Impacts on local partnerships and collaborative efforts					X	
	Impacts on availability and quality of drinking water					X	
	Impact on subsistence activity	X					
	Nuisance impacts	X					
Other:							

The MA SubCouncil will review the information provided and determine whether further information is required.

**CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS**

Project Name: Less Toxic Landscapes: A Healthier Housatonic River

Applicant: Center for Ecological Technology (CET)

<b>Impact Category</b>	<b>Impact</b>	<b>No Effect</b>	<b>Minimal Adverse Impacts*</b>	<b>Significant Adverse Impacts*</b>	<b>Beneficial Impacts*</b>	<b>Mitigation Required*</b>	<b>Permit or Approval Required*</b>
<b>Economic</b>	Short-term commercial economic impact of restoration action	X					
	Impacts on property values	X					
	Impacts on recreational expenditures and related businesses	X					
	Impacts on existing resource-based industries	X					
	Impacts on commercial water users	X					
	Impacts on river-based commercial navigation	X					
	Impact on wastewater dischargers	X					
	Other:						
	Other:						

\* Requires narrative discussion; see instructions in text.

\*\* List and description of permits required; see instructions in text.

**Impact narrative** There are no adverse impacts anticipated from this project. The following Beneficial Impacts are anticipated:

**Environmental**

- **Surface water quality impacts:** The project will reduce pollutant loading from non-point source nutrients (fertilizers) and toxic pollutants, (herbicides and pesticides).
- **Sediment quality impacts:** The project will reduce the future accumulation of additional pollutants (herbicides and pesticides) in riverbed and bank sediments.
- **Soil quality impacts:** The project will reduce the concentration of pollutants (herbicides and pesticides) in soils.
- **Groundwater quality impacts:** The project will reduce the leaching of pollutants (herbicides and pesticides) to groundwater.
- **Wetlands quality and services:** The project will help wetlands provide habitat for wildlife and nutrient removal by reducing toxic pollutants that may harm plants and wildlife and reducing the nutrient burden on the wetlands.
- **Diversity and abundance of aquatic species:** The project will benefit the population and diversity of fish, shellfish, amphibians, and other aquatic wildlife by reducing toxic pollutants and nutrient overload.
- **Diversity and abundance of birds and terrestrial wildlife species:** The project will benefit the population and diversity of wildlife (mammals, reptiles, invertebrates, birds) dependent upon rivers and riparian areas by reducing toxic pollutants that harm birds, amphibians and other wildlife.

**Social**

- **Impacts on minority or low income populations:** The project will improve the quality of life of minority or low income populations living near the project site by providing education and outreach to reduce the use of toxic chemicals, which can improve health, especially of children.
- **Impacts on local sense of community and well being:** The project will strengthen the connection between people's daily habits and the health of the river and raise awareness of how connected we are to each others' actions, the environment and our health.
- **Impacts on public health or safety:** The project will result in a constituency that supports public policies and private practices that reduce herbicide and pesticide use.
- **Impacts on education:** The project will improve the general public's understanding of the natural world by connecting their individual choices in choosing lawn care methods and materials with the health and well-being of the river.
- **Impacts on local partnerships and collaborative efforts:** The project will enhance efforts of local central and south Berkshire towns that collaborate to hold Household Hazardous Waste collection days by raising awareness that certain toxic products should be avoided if possible or properly disposed of when used.
- **Impacts on availability and quality of drinking water:** The project will help protect and preserve the quality of drinking water by reducing the use of toxic herbicides and pesticides.

## Supporting Technical Documentation

### **Housatonic River Water Quality:**

S.P. Garabedian, J.F. Coles, S.J. Grady, E.C.T. Trench, *and* M.J. Zimmerman, Water Quality in the Connecticut, Housatonic, and Thames River Basins, Connecticut, Massachusetts, New Hampshire, New York, and Vermont, 1992-95. United States Geological Survey, pages 1-2. <http://pubs.usgs.gov/circ/circ1155/nawqa91.2.html> This ten year old data documents non-point source pollution to the Housatonic River from human actions, particularly the use of herbicides and pesticides. Household use of these chemicals has increased in the past decade.

Sibner, C. Housatonic River Water Quality Report, East Branch, 2001-2003, Housatonic Valley Association. <http://www.hvatoday.org/publications/EB01-03WQReport.pdf>. Pages 8-10, 12-13. Documents the places along the East Branch of the Housatonic River that have had high nitrate and phosphorous levels between 2001-2003.

### **Pesticides in Rivers and Streams:**

J. Silver and B. Riley, “Environmental Impact of Pesticides Commonly Used on Urban Landscapes”, Northwest Coalition for Alternatives to Pesticides, September 2001. <http://www.pesticide.org/RHSLEnvironImpofPs.pdf> Documents the prevalence, exposure routes, persistence and water impacts of common pesticides. Page 2 looks at surface water contamination, page 3 at groundwater contamination and Table 3 documents impacts of specific pesticides on aquatic species, fish, birds and mammals.

### **Health Impacts of Pesticides:**

C. Lu, D. Knutson, J. Fisker-Andersen and R. Fenske, “Biological Monitoring Survey of Organophosphorus Pesticide Exposure among Pre-school Children in Seattle Metropolitan Area,” Environmental Health Perspectives, Vol. 109, Number 3, March 2001. <http://www.ehponline.org/docs/2001/109p299-303lu/abstract.html> Abstract documents the prevalence of pesticide exposure in pre-schoolers and shows higher concentrations in children’s urine when parents reported pesticide use in the garden. Levels are not high enough to cause acute problems but could have long-term health effects. Evidence that outdoor pesticide applications are absorbed by young children.

P. Lind, Poisoned Waters: Pesticide Contamination of Waters and Solutions to Protect Pacific Salmon, Washington Toxics Coalition and Northwest Coalition for Alternatives to Pesticides, 2002. <http://www.watoxics.org/content/pdf/PoisonedWaters.pdf> Page 18 documents that storm drains are a significant vehicle for transporting household (or agricultural) pesticides directly into rivers and streams. Documents that pesticide contamination of rivers and streams is widespread, page 16 and documents the impact of pesticides, even at very low levels, on salmon, indicating that other fish species might be vulnerable to similar or higher levels of exposure.

### **Programmatic Effectiveness:**

L. Dethman, “2003 Natural Yard Care Neighborhood Program Evaluation - Phase 2: Long Term Effects” prepared for Kings County, Washington. Research firm conducted follow-up on the long term impacts of the Natural Yard Care Neighborhood program and found that the “18

month survey shows a remarkable stability in the positive effects of the workshops over time, both in terms of knowledge acquired and behaviors changed. In addition, some further positive changes were noted. Participants also rated the workshops as useful in effecting their ability to practice yard care. Finally, participants said that the workshops helped build cohesiveness in their neighborhoods.” (p. 8). This research also documented that over time, “respondents for the 18 month follow-up reported discussing the classes, on average, with 1 more person than they did at the 6 month survey, increasing the average from 5 to 6 people. This is a notable and encouraging result which suggests that participants continue to discuss the program and to expand the number of people they talk with.” P. 7.

D. McKenzie-Mohr, “Summary of Community Based Social Marketing Techniques.” This discusses the framework for community based social marketing in contrast to informational based campaigns and messages that target economic self-interest, pointing to the failure of informational and economic messages to motivate people to change behavior. In contrast, social marketing uses the discipline of psychology to address barriers and benefits and to develop efforts that will motivate people to change behavior. See 3/4s of the way down the page. <http://www.cbsm.com/Chapters/introduction.lasso>

S. Little, Town of Wellesley Pesticide Awareness Campaign and Regional Pesticide Awareness Collaborative, program summary. (Toxic Use Reduction Institute). Little reports, “the two most important parts of the public awareness effort are having a single source of information on pesticide alternatives and sources for organic materials and organic landscapers, and sending a town-wide mailing from the Board of Health.” <http://community.turi.org/wel/index.shtml> Link to towns in eastern Massachusetts that have sent a letter from the local Board of Health to residents warning about pesticide applications on lawns and gardens. <http://community.turi.org/wel/boh.shtml>