

***A Changing Dynamic:
The Work of the Community-based School
Environmental Education Program (CO-SEED)***



**Carla Littrell Fontaine
August, 2001**

**A Research Report Compiled for the
Antioch New England Institute**

**An Investigation of the Challenges, Successes and next steps
for the CO-SEED project**

"William Wilkins was born with a talent, a talent to create. He was born in a little cottage out in the woods. William was taught to write in the cottage when he was only seven. He could scratch out drawings of greatness on the trees at age eight. Will lived with his two older brothers since his dad was in jail half the time and his mother had passed away at birth, his brothers were his guide to life. Although they fought, Tim and Tad did an excellent job of raising Willy, as they called him. They supported his dream to become an expert painter..."

- Opening lines from a creative writing piece by a Great Brook Middle School student, written during a visit to the original site of the village of Antrim, NH

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Introduction

Place-based work is effective because it makes education relevant. By locating the learning in one's own backyard, school yard, town forest, or community, there is a higher likelihood that students become emotionally engaged. When students are involved in work that is relevant and real and that contributes to some greater community good, there is the potential to foster a sense of respect not only for a place, but for and among the students and adults who work with the particular issue. As elders within a community interact with students engaged in academic work that has significance far beyond a textbook, they begin to see the young people as contributing citizens. As these young people work more directly with adults, they build bridges that allow for more understanding across generations. There are few better ways to cultivate future leaders and thinkers than by having them do work that helps nurture and protect that which is vital in their place.

CO-SEED has facilitated the development of these important relationships -- helping students, teachers and community members engage collaboratively in inquiry about their place. As CO-SEED has worked to build bridges -- between school and community, and between younger and older citizens of a community -- they have produced some powerful, substantive work. This increasing complexity yields a different way of thinking, a new way of doing business. It really is a changing dynamic.

My evaluation work has been an effort to gauge this changing dynamic. I have worked to determine in what ways sites have implemented community-based teaching and learning within their communities, and how that work, once established, has spread and deepened. In this inquiry, I have attempted to:

- determine if there is a large understanding among faculty of what community-based work is;
- analyze whether interdisciplinary units have been developed in response to a focus on place;
- consider changes in teaching techniques;
- determine whether there has been an increase in the number of faculty who are engaged in community-based work;
- consider administrative encouragement or barriers for conducting project-based work in general;

- determine, from conversations with community members, whether they have been more involved in the teaching and learning that occurs at schools in their communities;
- gauge administrative predispositions to determine if space is allowed for community-based work to occur within the scheduled school day;
- analyze what has been effective about the CO-SEED organization that has attempted to build bridges between schools, community members, and community environmental organizations;
- assess how student work has become more interdisciplinary, reflecting a ‘real life’ focus;
- consider the kinds of teacher professional development programs that are most helpful for faculty who wish to use the concept of place in their classwork; and
- evaluate if the structures that have been put into place by CO-SEED have become institutionalized and/or will be effective for facilitating long term sustainability of the work.

Carla Littrell Fontaine
Cambridge, Massachusetts
August, 2001

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**GREAT BROOK MIDDLE SCHOOL
ANTRIM, BENNINGTON, FRANCESTOWN and HANCOCK, NEW
HAMPSHIRE**

“CO-SEED has caused our school to be focused on meaningful curriculum – environmental community-based curriculum. CO-SEED was the push, the momentum and force for the work. It connected us to the community. School talks about preparing kids for the real world. I want to connect them to it. I have a lot of trust in the community because of [our connections] through projects like the trail, the bread oven, and Memorial Park. [Our CO-SEED work] made a statement that we wanted to do something for the community. The community feels connected to us -- not like unwanted visitors. I have a teacher out today. I did not have to get a substitute. A parent came in and substituted to help out and I will go with her and the class to do water testing. This is the spirit of CO-SEED.”

- Rick Nannicelli, Principal, Great Brook School, Antrim, NH

Key points for Antrim

- This site is farthest along in the work of CO-SEED.
- Great Brook School has significant contact with Antioch interns who are familiar with project-based environmental teaching.
- Rick Nannicelli, the principal, endorses projects as a means to integrate the curriculum.
- There is a positive impact in having a teacher and project facilitator at the site who is a teaching colleague and versed in the CO-SEED approach to community-based learning.
- This site exhibits the strongest philosophical alignment between the vision of the school administrator and the CO-SEED work.

Students across the country learn history and science from a textbook. For students at Great Brook School, the community is the textbook. Of all of the current CO-SEED sites, the work of teachers, community members and students in Antrim embodies the most mature integration of community-based work. CO-SEED was first piloted and established in Antrim where there is significant administrative support of project-based, environmental and experiential education and a firm belief that the community should be an integral part of learning experiences. This philosophy permeates the school. Teachers at this site have experience with project-based work and while some projects have historically contained a community component, CO-SEED has been the impetus for integrating community resources into the work and for causing educators to intentionally solicit community needs in order to determine the specific focus for the work.

The CO-SEED facilitator and Extended Learning Program teacher, Beth Frost, plays a significant role in facilitating the work at this site. "I've found that you can have great curricular materials, but if you don't have someone to help teachers implement them, they sit on the shelf. Teachers love having the resource people work with them. That's more important than curriculum or teacher's workshops," Frost notes. Frost teaches part-time while spending one day each week assisting teachers with fieldwork, facilitating projects between the school and the community, and handling many of the logistics that are required for learning outside of the classroom. As the liaison with the community, Frost builds relationships with community entities such as the library, the

Historical Society, local businesses and searches out local 'experts' to work with students and teachers on various projects.

Anne Kenney, a teacher at Great Brook, confirms the highly motivating role a person dedicated to assisting with project-based work can provide: "Once teachers see [work like CO-SEED] happening, feel its presence, see the projects and learning experiences, it begins to gain momentum and people start looking at it. It makes a difference to have a teacher on staff doing it. If you have a resource and a good idea, you know it isn't you doing it alone."

The SEED team members, including the CO-SEED site facilitators and environmental learning center (ELC) people at each site are instrumental in helping educators address certain key fundamental questions. They ask teachers to consider these questions:

- How will this project address a real community need or issue?
- How will this unit involve students in real life work?
- Would it make sense to include an environmental component in this work?

As teachers learn to think in these terms, what starts off as a straightforward idea often blossoms into a larger more integrated unit in which students engage in open-ended inquiry and solve problems around real issues. In one upcoming unit, the middle school math teacher will initiate a project in which students help analyze the parking and traffic flow patterns outside of the school. It is widely acknowledged that the current traffic situation is not working well. Many people feel it is inefficient, too crowded and may even be unsafe. The school's custodian -- a person very involved in working with the students and their learning -- suggested the need for this traffic study. Designing a project that will utilize students as real researchers, observing the traffic flow, conducting traffic counts, measuring existing spaces, determining parking needs and efficiency in terms of flow might only be the first step. While gathering data around the problem, students will likely interact with many members of the town -- drivers who drop off students, school administrators, bus drivers and students who access the central parking area either on foot or by bicycle. Not only will students become familiar with a variety of ways to gather data, they will also interact with a number of individuals outside of their classroom. Their findings and proposed changes will likely be presented before the town council and

school board, requiring that the students demonstrate how they analyzed and synthesized data in order to reach their proposal. As Frost notes, "The level of engagement in this work helps them remember what they have done far better."

This project will require the students to learn to work on a team, in much the same way many adults interact in their jobs. The result of this work will involve students solving a genuine problem in which they and others stand to benefit from their newly acquired expertise. As they consider issues around safety, students will become more aware of the many issues surrounding a task as complex as traffic flow. This awareness will be an important lesson which has the potential to influence the students to be more careful, conscientious users of the roads and parking areas – as pedestrians, bicyclists, skateboarders, auto passengers, and future drivers.

Because this exercise puts students at the very center of analyzing, reflecting upon, and suggesting improvements concerning a real problem that exists in their community, their investment and sense of ownership of the work will likely be quite high. Engaging in this work, they will become contributors to solving this municipal problem, as well as citizens who stand to benefit by the resulting plan. This project is typical of much of the work in which the students at Great Brook Middle School are involved.

During the initial introduction of place-based work at each site, the role of the CO-SEED site coordinator is crucial. Frost's collaborations with teachers and community members at Great Brook have been so successful that the principal has written her position into the school budget for the upcoming year. This inclusion acknowledges the perceived value of this work, as well as the ongoing commitment to support innovative community-based practice. Frost's colleagues have embraced her implementation of place-based work as she observes, "This year before school had started, people were talking about projects and wanted to book time and get on my schedule."

Another indication that the work in Antrim has been useful and will likely be sustained is that many community members are aware that education is being conducted differently than in the past and that this change can be attributed to an intentional community focus. Parents and others in Antrim are aware that Antioch New England Graduate School -- through their CO-SEED initiative -- has been a vital force of change in this place. Local work is now becoming more integrated into the life of the school

while students are becoming more visible in the community. Early in the CO-SEED work, teachers requested that Frost assist each week in their outdoor study of microinvertebrates. Teachers have now become more confident taking students out so that they provide the scientific expertise and get assistance from parents and volunteers in facilitating the work.¹ As Frost observes, "this is a good shift." As teachers extend and deepen the lessons, they will likely engage in more research -- providing a rich niche for students and teachers to learn more geology, biology and local history together.

Attaining this level of comfort with open-ended inquiry and facilitating the aid of community resources on one's own is a sign of maturing CO-SEED work in a site. As Meade Cadot, the Director of the Harris Center² points out, "You know it has been a big success when teachers say, 'You don't have to come in and help us with that anymore.'"

As the CO-SEED work in this site has grown so has the number of teachers and students involved. When teachers become comfortable teaching in a different way, they often become more open to working in a more interdisciplinary manner with their colleagues. As they tie their instruction to work that is important in the real world, the lines between disciplines begin to blend. While the parking lot dilemma may originally start off in the math classroom, it is likely that the work may broaden to encompass the domains of science and social studies. If students propose an option that involves pouring more concrete, their work can explore the ecological impact of parking and traffic on the local environment. As they weigh the impact of the decisions they make, they become more versed in thinking in terms of costs and benefits. They experience how municipal decision-makers struggle with the real problems of local expansion, introducing a social studies component into their work.

Another indicator that the work has taken hold and is important to a site is when the exploration naturally expands from what may initially seem a discrete learning opportunity and evolves a life of its own. As this happens, students will likely lead -- or help in determining -- paths of exploration. As students delve deeper, they begin to understand the complexity involved in any meaningful issue. Uncovering this complexity naturally leads into further research and a deeper understanding as students explore

¹ In some situations, these volunteers are lending their expertise to the work, expanding the perception of 'teacher'.

² The Harris Center is the environmental learning center (ELC) partner in this site.

implications of actions, as well as cause and effect. At the same time, the work becomes more inclusive as this immersion often includes a greater number of citizens. Dealing with issues that solicit real perspectives puts students at the heart of vital learning opportunities. As students take on the role of researchers -- understanding that their contributions are significant and their work is meaningful -- they exhibit a higher level of investment in the work and the product they produce is of a higher quality.

A teacher new to this project-based inquiry will learn to trust the direction of the inquiry and the resulting learning experiences. As students develop expertise and teachers become comfortable taking students into the community to conduct their work, this venture into uncharted territory will likely become the preferred method of teaching and learning.

In an effort similar to the work of CO-SEED -- an effort from the North Coast (CA) Rural Challenge Network of the Annenberg Rural Challenge -- a teacher expressed a sentiment that was similar to those I encountered through the work in Antrim, "A student studying wetland issues related to a new development project stated that his teacher wasn't any longer someone giving him meaningless assignments, but a resource to aid him in preparing for the critical work he was engaged in!"

What We Can Learn From Mentor Teachers

Two collaborative teachers at Great Brook School, Kathleen Bigford and Letitia Rice, share their perspectives on place-based teaching involving a group of sixth and seventh graders.

Kathleen Bigford recalls how they initially designed their unit, "We asked, 'What do these kids need to know?' They need to know how to think. They also need to know how to learn. A love of learning leads to success in any field. Thinking, learning and community were our three central themes..."

The teachers designed the lessons so that students were doing the work of researchers. "We mapped the land using compasses. Then we compared student maps with tax maps. The scale was off by a one-half acre difference. Students did compass work, degrees of a circle, measurement of distances, and estimating. One student's dad was a forester and talked about forest succession. 'This tree is growing here because of

something before.' We learned tree species and looked at beech stands to see how they grew. There was exciting biological stuff we learned just about trees.

We used the book, *Reading the Forested Landscape* by Antioch Professor Tom Wessels. It is used at a graduate school level so it was challenging for sixth and seventh graders but they got the gist of it. Wessels walked the land with the kids. He was impressed with their grasp of his book. For instance, they could tell him that if a stone wall is made up of tiny rocks, it is likely the adjacent land was for corn or vegetables. Stonewalls with bigger rocks and that are higher were likely pasture. The kids had figured this out already. They could look at wells and figure the probable location of houses. We as teachers wanted to put ourselves out there learning too. We barely stayed ahead of them."

Letitia Rice adds, "One of our colleagues spoke of how one of her students got upset not knowing what particular subject they were [studying]. Place-based work becomes so integrated. We like the fact that kids couldn't tell which discipline it fit into. Our goal as teachers was to do just that -- not separate our tasks into neat little boxes. It is especially important for eleven to fourteen-year-olds to have applications for their learning. And in our case, it was a service to the community."

Rice and Bigford used different assessment tools -- rubrics, daily student reflections, weekly student self-evaluations. They commented on each student's reflection everyday. "It was a collaboration between teacher and student." The teachers handed back their comments on the student reflections each morning. Students were disappointed if the teacher had agreed with the student's own assessment and made no comment.

Bigford notes "This changed the way I taught. [Because of the student feedback and the subsequent level of instructional responsiveness] I sometimes do not know what I'm going to do the next day, or the next week. I heard so much from the kids at night when I was reading their comments. I never would have known what worked if I hadn't read them. It became a private dialogue with the student. [At the end,] students did a self-analysis of their projects. They wrote an unedited piece to go into their permanent record. It was the best writing we saw from them all year."

Rice and Bigford spoke of how helpful SEED team meetings were in terms of bringing in community members and facilitating useful brainstorming around new work and needed projects. Because specific SEED team meetings focused on community

members involved in business, arts and crafts, and the library and Historical Societies, teachers became aware of resources and needs of which they had not been previously. These meetings also served to raise the community's awareness of students as valuable resources. Now the Historical Society wants to have students create a map and research the beautiful architecture of Hancock. Inviting this open dialogue with community goes far in creating a new and vibrant dynamic, fostering a spirit of reciprocity between school and community.

Teachers who are not used to taking students outside of the classroom sometimes express an initial hesitation to do so. Bigford and Rice addressed how they manage kids when they take them out. "To work with kids outside, at the beginning we had to remind them it was not recess. We always assign them more than they can get done. We stay on the move. You can't get involved in one specific thing. It is not that much different from being in the classroom -- you just don't have the walls. One student who tended to be hyperactive in a traditional classroom had the best year of his life. [This type of work] appeals to all kids."

Bigford commented on the roles she deems necessary for doing place-based work. "You need an idea person, a detail person, and a politician to smooth the way and get the word out. It's important not to try to do the whole thing yourself."

Finally, when asked to what she attributed her success with place-based work, Rice reflected, "If it wasn't for the people at Antioch, there would have been no way I could have taught the projects I have."

Inviting the community into the process can provide genuine benefits. When I visited Great Brook School, I accompanied a parent and the principal as they led students in a water quality study at their local wetlands, located behind the school. In conversation with the parent who was filling in for an absent teacher that day, I learned of her initial reticence around leading students in such an important task – data collection which would ultimately be part of a longitudinal study of monitoring water quality. However, because the students had done this procedure a number of times and because the parents had accompanied them on some of their previous trips, everyone remained focused on the task of collecting samples. Each student responsibly performed their role and the testing chemicals were handled carefully by the young glove-clad 'researchers'. Students worked

with a level of engagement and focus that reinforced the importance of the task. While the accompanying parent had an adequate understanding of the role of each student, because of his or her developing expertise, she served more as a facilitator of the process.

Some administrators believe that once their fellow citizens observe the authentic and important work students are doing, they will become more supportive of the larger educational process. As more members of the community become educators in these place-based endeavors, they will feel a larger investment in the teaching and learning opportunities that happen locally. Intergenerational relationships will deepen as community bonds are strengthened.

Having a cadre of veteran teachers in Antrim who have designed project-based learning activities over the years lays important groundwork for new teachers. For example, teachers new to project-based work can build on the work of a colleague, Dona Fairbairn, who five years ago worked with her students to build a walkway into the wetlands. Using these previous accomplishments as a starting point, while at the same time having the expertise and mentorship of these teachers, is a particularly valuable resource for newer faculty who may need help thinking of possibilities and structures.

A Connection to the Community

As Beth Frost notes "Ultimately place-based work will get the Alternative Learning Team kids a connection with the community. They tend to be disenfranchised." The following highlights one very successful endeavor by teacher Diane Parker.

Great Brook School has proven to be a fruitful place in which to have started the CO-SEED work. There, the administrator encourages educators to approach teaching and learning in novel ways. One Alternative Learning Team (ALT) teacher, Diane Parker, recently worked with her students, community members, and Beth Frost to build a bread oven. While the students are currently practicing the art of making bread and testing their recipes on Great Brook faculty, the ultimate goal is to have a small business that would sell to the larger community. This enterprise will provide students with real-world lessons in economics, math, and business.

The ALT students engage with their teacher at the end of each day in reflection and feedback on what they learned, on what went well, and what needed improvement.

These students' comments capture the challenges, life lessons, and practical knowledge associated with this project-based endeavor:

- I learned to design the bread shed. We wanted the cover of the oven to be sturdy and have enough room to put stuff in and walk around it. It [still] needs shelves and vents.”
- I learned how to build the bread shed and about safety – don’t leave your tools on the ground cause you either lose it or you break it.
- I learned how to knead dough.
- I learned how to shovel up the ashes and not get the bread all dusty.
- (Addressing work they are doing with elementary students) I would like to give myself feedback because the kid I was working with last time, he didn’t talk too much and today him and me had a blast.

In reference to the project-based work Parker commented, “It’s the first time anyone has asked these kids what they think. They’re smart about things. They are so proud but not good with pen and pencil. [With this work] they feel so valued.”

Other students studied the history of the region by participating in a unique exercise, one that immersed them in historical research and prompted creative writing pieces. Students made their way to the cemetery at the original site of Antrim, some of them commenting along the way that, while they live in a rural environment, they do not get out much into the woods. Seventh grade students, teaching assistants, and teachers Marcia King and Pam Pascale, headed to this site to participate in an interdisciplinary project related to the earliest roots of the community. At the cemetery, students picked a gravestone and sketched it, making sure to include all of the inscriptions. They then did a creative writing exercise which involved fabricating a story about the life and death of their chosen person. The young people quickly became engaged in this exercise and focused on the task at hand. Students were intrigued by the way they were able to see members of the same family represented together in the cemetery. Students could be seen bending in closer to the stones to read the words that were obscured by tall grass, moss, shade or simply time.

The Community as a Classroom

Veteran Great Brook teachers Barbara Black and Anne Kenney recently received a grant that partially funded some of their place-based work. Their reflections on the experience offer valuable insights into the power of inquiry and open-ended complexity that place-based work inspires. The following excerpts are from:

"Stories in the Land" Final Report: A Stroll Through Antrim's Changing Landscape --
An Audio and Pictorial Tour Guide
by Barbara Black and Anne Kenney, Great Brook School, Antrim, NH

...Classroom walls would open wide into the surrounding Antrim community as we explored the changing landscape of Antrim's South Village. What would this yearlong exploration look like? We did not know the exact route, but students and teachers together would investigate the landscape and learn together. The final product of the yearlong study would be a guidebook containing a walking tour of South Village. We had the vision, but not the stops along the way. Those would evolve as we learned the stories in the land.

Our journey began last fall with the familiar, the school grounds which has a riparian wetland. With the help of guest speakers with professional experience in their fields of study, and using hands-on activities, students explored the concept of watershed, soil types in our wetland, aquatic invertebrates in the stream, and the vegetation in our wetland. We did chemical tests and aquatic invertebrate samplings to monitor the health of our wetland. From these learning opportunities came graphs, charts, diagrams, writing pieces, journal entries, sketches, vegetation wheels, and an understanding of the land. We learned how to read maps and manipulate data in math. All these learning opportunities heightened awareness of the stories the land tells us...

...Kermit Davis, a guest speaker much favored by the children, enthralled them by sharing his father's diary entries written about life in Antrim one hundred years ago. The Antrim Historical Society generously allowed us to borrow archival written resources and photographs. We used these sources to enrich the various histories of Antrim written over the last one hundred years. The written material was sometimes difficult. Therefore, adult volunteers often read and discussed with the two students

involved in researching a building. This was a project that required many human resources and the community responded by helping the students read, research, and write.

Once the research began, every student worked with a partner. A twosome chose a building in South Village to research and began utilizing written resources. It was also time to start the oral histories, each focusing on a particular building. Antrim's senior citizens are repositories of local folklore and history. Students needed their stories, but first they had to acquire interviewing techniques. Lyman Gilmore, a local oral historian, shared his expertise with our interviewers. Students then used that knowledge to write questions to use while taping the oral histories of a friend, a mom or dad, and an older family member. They had practiced and now they were ready...

In May, both classes focused on writing the guidebook. First, the two experts on a building each wrote his/her own description based on joint research. They rewrote to include the best parts of the two writing pieces. Then began a long process of revision and editing. Both teachers and Paula Flemming reviewed each piece. Students, working with their research partner, rechecked facts, researched questions that arose when the writing was reviewed, clarified language, edited, and made phone calls to verify information. This was a long process that required continuous rereading and revisions. It also included a June review of each description by the building expert, the interviewee.

Our research took other forms. One class walked downtown armed with measuring tools. Intent on a real measuring lesson based on math skills learned in the classroom, they measured buildings focusing on ascertaining size. The other class of students sat on the village sidewalk across from their building, scrutinized it, and then used skills learned in art class to sketch it. Our research cut across and blurred disciplinary lines. These activities definitely highlight the importance of volunteers. Without them many activities would not have been feasible...

...How have their learning experiences changed our students? Some changes are obvious and some are subtler. Students are much more aware of the need to preserve history and stories for later generations. They realize that there are mysteries to solve. Two sources are sometimes in conflict and they must make decisions about which is the most valid. Taking notes when we have speakers has become more important to them because they now realize the need to refer back to these notes when doing later investigations and writing. They know the importance of getting permission to use

copyrighted material, such as maps and music on tape. Interviewing techniques and voice tonality when taping they now value and understand. Because they listened to and took notes from their taped interviews, they are well versed in checking closely the data on tape and discovering discrepancies. Perhaps the learning most valuable to the society in which they live is a deeper understanding of the community's elders as respected sources of knowledge and as really nice people. Just being comfortable around senior citizens was newly acquired learning for some of our students.

Our students and we have gained much by using the community as a classroom, its citizens as experts, and primary sources as textbooks. This immersion into a sense of place and community helped us develop interdisciplinary lessons that made learning meaningful for students. Digging into the layers of Antrim's history and searching for the clues left on the land has helped students value community and recognize its continuous evolution over time."

Teacher Anne Kenney addresses the benefits of the community as a classroom and the impact on the work of the CO-SEED philosophy and support:

"This school has a dedicated core of teachers who are committed [to this type of teaching]. The community is more aware of learning in the school. The Antrim interviewers are out in the community, at town hall and the library. To do this project involved a lot of local people. Barbara lives in the community and gets a lot of feedback. People are amazed that fifth graders can do this. Townspeople are overwhelmed. Their initial reaction is 'fifth graders could not have done this.'

CO-SEED sets a climate for the school. It encourages. You don't feel you're in it all alone. There is someone there with you. I never thought it would turn out this nicely. CO-SEED is everything. How do you separate anything? How do you decide if the story of water is science? The whole idea of integrated curriculum is making things meaningful. CO-SEED creates a climate. It's the thing pushing you if you stop."

The reflections of the students involved in the Antrim Walking and Driving Tour reinforce Kenney's positive spirit surrounding the place-based work:

"I used to go to the Antrim Baptist Church and didn't know anything about it."

"It was exciting work. [If we did it again] I'd make the pictures color because you can't see all the details on the buildings. We did it on the computer – we connected the camera and the computer. We learned how to handle it all. We took a few pictures of

our building. The class put it all together. We wrote our own pieces. We had to do several drafts. I learned a lot about every building – not just mine. In the end, I knew more about other people’s buildings than they knew.”

“The thing that stands out from the walking tour project was I liked being at the recording studio and getting to eat lunch at the teacher’s house.

(In response to how they would change their project or do it differently next time) “I’d make an abridged version of it. It has hard words for little kids. I’d make the pictures in color because some of them can be hard to see.”

(Addressing the collaborative nature of much project work) “I like working alone better. Partners are hard to work with because they don’t do much sometimes and sometimes they do all of it and leave you out.”

Antrim is in a situation in which the community-based work is integral to the education experience and recognizes no boundaries. It is truly a school without walls.

Recommendations for Antrim

- An effort should be made to include an ongoing community and student presence at SEED team meetings. This more regular presence of a community and student voice would help develop ongoing conversations and understandings.
- Cultivate an increased community presence in the work of the school to weave their contributions into the fabric of the curriculum. Build efforts to replicate experiences such as when the volunteer accompanied the students on the water testing fieldwork.
- Assess the progress and usefulness of committees that resulted from the Community Profile. The Celtic Festival is an example of a committee that has continued to enjoy success. What can be done to reinvigorate the efforts of other committees?
- Identify and enact strategies to showcase CO-SEED products developed by students. Use this body of work as a teaching tool at other sites.
- Work to create next steps and new directions for this site, which has so effectively integrated community-based work into the curriculum. One effort might be to utilize and integrate the contributions of community members in the same highly effective manner as has been achieved with teachers.

BEEBE ENVIRONMENTAL AND HEALTH SCIENCE MAGNET SCHOOL MALDEN, MASSACHUSETTS

Key points for Beebe

- The school has embraced CO-SEED philosophy and figured out how to make it work to enhance the school's theme orientation.
- CO-SEED facilitator is effective in working with teachers around possibilities for community-based education.
- The Magnet Program Focus Teacher, Robin Jorgensen, is an important liaison between the school and the community.
- A strong partnership exists between the school and the Mayor's office.
- Students are viewed as 'change agents' as the Mayor has invited them to develop a proposal to increase the level of recycling among citizens of Malden.
- Two out of three professional development days were facilitated by CO-SEED.
- After being exposed to Malden's historical, environmental, and economic curricular possibilities, teachers who earlier spoke of barriers to this work got excited about the plan for the upcoming year.
- The creation of a butterfly garden as an environmental project and memorial was an effective culminating activity at this first year CO-SEED site.
- There appears to be a commitment to CO-SEED work among different levels in both the city government and school administration.

Getting Started: Building Relationships

This has been the first year of collaboration between CO-SEED and the Beebe Environmental and Health Science Magnet School in Malden, Massachusetts. At this kindergarten through eighth grade school, located in the heart of the city, there is an emphasis on building relationships between school and community. The students who comprise the Beebe student body are a highly diverse group, coming from homes that speak over 35 native languages. The faculty of Beebe is new to the school as well. They

have worked together for only two years, having been recruited from a number of different schools. The Beebe school-community focus is intended to increase students' understanding and appreciation of their place, while enabling community members to have greater access to the work and contributions of Malden students. The early work at the Beebe school has involved facilitating community inclusiveness -- establishing a process to ensure that people are aware of and understand the mission of the school and the work of the students.

A crucial first step at Beebe has been one of helping teachers learn more about their colleagues and how and what they teach. Building a sense of community within the school has been part of the role of Robin Jorgensen, a full-time Magnet Program Focus Teacher. Her work, much like that of Beth Frost's at Antrim, has involved working within the school to help teachers think in terms of project-based environmental work with a focus on community.³ While this person may initially suggest possible resources for the teachers to use, they also serve as the liaison connecting those community resources with teachers. They have access to the telephone during the course of the day and are able to coordinate with others outside of the school. This is important in that they organize many of the logistics involved in taking students outside of the school building. This coordination was critical during a professional development day activity this spring when Beebe teachers met with representatives from the Malden Mayor's office.

Rick Nannicelli, principal of the Great Brook School in Antrim, NH reinforces the importance of a position such as the Magnet Program Focus Teacher, "What makes CO-SEED effective? Hands-on technical people finding the resources to give the community. Someone to do the groundwork, taking care of the logistics. When someone is afraid to try new things, to have someone help them would make a big difference."

Beebe School Professional Development

During this academic year CO-SEED organized and provided the training for two of the three Beebe School professional development days, as well as one full-day training

³ Having the site facilitator located in the school building is an important ingredient for successful implementation of place-based learning. In this way, the person is accessible for faculty -- someone who is on site, getting to know the teachers, along with their lessons and curriculum.

for grades two, three, six and seven. Teacher evaluations of the three-day Environmental Science and Service Learning Workshop -- organized primarily by Bo Hoppin and Robin Jorgensen -- held there in August, 2000 addressed how this workshop was different from others:

"This course actually provided real examples! It was great to have teachers available who have planned and successfully done projects."

"This is the first course that's addressed going outside the school and using the community as a classroom."

"Much better, more fun, more relevant..."

"This course offered many specific opportunities to provide service learning opportunities in my curriculum."

"I loved being in the community and outside and the practicality of the course is so useful."

Confirming the achievement of a goal CO-SEED seeks with all of their professional development courses, one participant stated, "I really enjoyed this course. The most beneficial part was that it got me to really think about how I could actively involve my class in the community." CO-SEED staff, along with site coordinator Robin Jorgensen, have been responsive to the teacher's suggestions for future professional day opportunities. One suggestion to explore a little know local resource, "maybe we could visit the Malden River," was realized during the highly successful spring professional development day.

November, 2000 Professional Development Day

During the November professional development day, the CO-SEED staff from Antioch New England Graduate School discussed the findings from the teacher surveys⁴

⁴ In response to the prompt, "List at least one way that you have carried out the school theme in your class," one teacher, indicating a community-oriented approach, responded "The children wrote recycling poems. They have visited the question 'Why should people in Malden recycle?' for inclusion in a booklet at the Mayor's office." In another section, an attempt to gauge the existing level of community involvement, responses to "My students interact with community members, other than parents of my students during class time" scored (2.11); "Students leave the classroom for learning activities in the community" scored (2.26); and "Parents come into my classroom regularly to work with students" scored (2.26). Scores falling between 2 and 3 on the scale indicate responses in the range of (2) disagree and (3) neither agree nor disagree. It is likely that while teachers seem to be gaining an understanding of how they can incorporate the CO-SEED philosophy within their curriculum to help them achieve their themes as an Environmental

that had been filled out the previous year. They also offered training sessions designed to familiarize teachers with projects that involve students in the community and resources to help them plan their curriculum. Sessions on Mapmaking,⁵ Questing,⁶ an Introduction to the Center for Environmental Education web site,⁷ and Information on Oceans⁸ (an upcoming theme focus for the school) were offered. This paraphrased remark from one teacher who had historically been hesitant to embrace the school theme speaks to the impact of the workshop:

I thought Beebe's professional development day was very good. The folks from Antioch did a good job of presenting information that related the theme to what teachers are doing in the classroom. It is hard to get ideas across in the auditorium -- especially to teachers who want to sit in the back. But they did it. They explained how we could relate the theme to different subjects. I had spoken to them last spring about my concerns, and they listened. They know I have to cover my subject, but they gave ideas on how the theme could help and relate.

That listening and responsiveness to teacher concerns has made CO-SEED a relevant partner in the efforts at the Beebe School.

Another effective method utilized for the November Professional Development day was the sharing of expertise by mentor place-based teachers from Great Brook School in Antrim, NH. Two teachers who have designed effective project and place-based units shared their expertise with Beebe teachers as they discussed the benefits and challenges of this type of work.⁹ As this is a new way to think about teaching and learning, sessions were held that addressed the critical issue of assessment. Designing

and Health Science Magnet School, moving toward that realization will require a change in existing teaching practice.

⁵ In this session, David Sobel, Co-Director of CO-SEED at Antioch New England, showed teachers how to use mapmaking to integrate social studies, mathematics and science skills while giving students a sense of belonging to a place. The ultimate goal of these activities is to build and enhance stewardship.

⁶ Co-Director of CO-SEED, Delia Clark, explained how permanent treasure hunts called Quests had been designed in other CO-SEED sites and could be used to highlight special places in Malden. Clark pointed out the interdisciplinary nature of Quests that often integrate English, social studies, art and mathematics.

⁷ Michael Duffin, of Antioch New England's Center for Environmental Education (CEE), helped teachers learn to access theme information, curricula and other websites through the CEE's resource site on the web.

⁸ Senior Project Manager for CO-SEED at Antioch New England, Bo Hoppin, worked with teachers to develop ideas around ocean curricula they could use in their classrooms for their December, 2000 through March, 2001 focus theme.

⁹ Teachers at new sites get ideas while hearing about innovative lessons and seem especially eager to have tools others use for teaching and assessment -- rubrics, samples of student work that can be shared with their students, videos of student presentations, and reflection pieces written by students and/or teachers. Kathleen Bigford and Letitia Rice shared rubrics they used in their own classrooms for students' Book Reviews and Book Talks.

project-oriented rubrics,¹⁰ encouraging ongoing student and teacher reflection around the work, and determining a culminating event for each unit that involves some type of public presentation are important ways of refining work and determining what was learned, what was successful and way. This professional development opportunity ended with a general sense that teachers were receptive to these ideas and attempting to find ways to modify activities to meet their own curricular and community needs.

June, 2001 Professional Development Day

Even before the completion of the June professional development day, teachers were requesting that it be repeated the following autumn, upon their return to school. While the participants were extremely satisfied with the sessions they chose to attend, they wanted the additional opportunity to attend sessions of which they heard their colleagues speak highly. Sessions led by local town historians were quite popular and relevant, as evidenced by the immediate discussions among teachers on how they could use what they had just learned about the history of Malden to design a unit for the upcoming year. While it is not uncommon for teachers to feel that professional development days are a thing to be suffered through, it was evident that this opportunity was engaging and inspirational. Participants took a boat trip on the Malden River for the first time, many noting that they had never before imagined the river as a resource in their community. As they learned more about Malden's history, they discovered that at one time the river had been the lifeblood of the community -- providing a vital link to the system of rivers and canals that connected this region with the industrial towns of the north.

Attesting to the genuine collaborative spirit of the CO-SEED work in Malden, another professional development day option for teachers was a visit to the office of Mayor Richard Howard. There the teachers heard about the history of Malden, learned plans for future economic growth, and were given the opportunity to talk with the Mayor and representatives from his office about possible collaborations they could engage in for the coming year. Together they discussed what students could do to help Malden and

¹⁰ These rubrics may be composed of categories determined by students as some teachers use this as a learning opportunity to familiarize their students with the specific skills and knowledge they will be asked to master in this unit.

how the Mayor's office could play a role in their learning. Robin Jorgensen posed a question to the Mayor on any suggestions he might have "of ways students could help city hall." His response indicated that he would take the potential contributions of students quite seriously, "This office is responsible for one major contract, the trash hauling and recycling. The owner of JRN, the company we use, would be interested in talking about recycling. Students could take a field trip to see the incinerator. [The problem is] there is not much of a market [for recycled goods], plastic, and cardboard. There is no mandated use of recycled products and there is not a lot of demand there. After studying supply and demand, we could use an idea of how to use those plastics..."

After the discussion with the Mayor, one teacher reflected, "How can we as an environmental school set the standard? We use things we shouldn't be using. We could have reusable lunch bags for kids. We have styrofoam cups and paper plates. Maybe we should be washing our dishes. We could figure out the cost of water and the energy that is used in that process." Toward the end of the discussion Mayor Howard encouraged student involvement to think of ways to collaborate with his office to help inspire a corporate recycle program in the city, as well as a residential program. Indicating the authentic change he feels a grassroots effort such as this can achieve, he reflected, "Kids can really change things."¹¹

The wide varieties of sessions that made up June's professional development day indicate the breadth and depth of the community-based opportunities for teachers to explore relevant topics of interest. These workshops included:

- *The Growth of Malden and its Diverse Neighborhoods -- A Story of Growth*, taught by Joanne Iovinno of the Malden Historical Society and Barbara Tolstrup of the Malden Historical Commission;
- *Oral History Stories as told by Medford Residents*, presented by Steve Lewis;
- *Brownfields -- What are They and What is Their Future?*, presented by Sophia Mandragouras of Combined Properties Inc.;
- *The Malden River: A Story of Human Use*, led by Jeff Nangle, an environmental consultant from Malden;

¹¹ The middle school principal participated in the day's activities and further endorsed his commitment to this type of community-based education.

- *Fellsmere Pond -- Its Ecology and History*, taught by Bo Hoppin, ecologist from Antioch New England Graduate School;
- *The Malden City Government -- How Does it Work and How Can Kids Get Involved?*, hosted by Mayor Richard Howard; and
- *Bellrock Cemetery -- What Does it Tell Us About Malden?*, taught by Attorney Frank Russell.

'Bridge to the Future' Visioning Days

The Beebe community profile, 'Bridge to the Future' Visioning Days, was held in January 2001. The diversity of the community was reflected in the wide range of participants, including teachers, administrators, community members, and students in attendance over the one and a half day event. Though some parents did not initially have a clear sense of the purpose of the meeting -- some stating they came because their child asked them or because their son or daughter liked their teacher -- their contributions were valuable to the work of the small group meetings. It was in these more intimate groupings that participants brainstormed viable options for meeting the needs of the local community. As needs were identified, corresponding committees were established with the explicit purpose of addressing those issues. These committees were quite active later in the spring. The Parent/Teacher Communication Committee, whose initial focus was creating student folders to carry notices back and forth from school, has suggested establishing a network of translators who would, for a nominal fee, translate the notices into the appropriate languages. The Parent and Community Involvement Committee focused on Career Day and helped to showcase student work during Showcase 2001.¹² The Student Voice Committee was charged with creating a student newsletter and coordinating student performances. The Multicultural Parent Group was responsible for organizing an International Club for students and planning a 'Getting to Know You' event.

One identified need reflecting the diverse nature of the community was the need for language interpretation for those individuals whose native language was not English.

¹² Among a host of other activities planned that day, one that provided a particular service to the community was hosted by Dr. Perito. In keeping with the CO-SEED philosophy of reciprocity between

There was general consensus that in order to establish an inclusive relationship with the community, it was vital to have effective communication. This issue was explored in subsequent meetings. In addition, some participants asked to have informational and training workshops for parents and caregivers -- an idea that was implemented soon thereafter. This spring, the school, along with Parent Partners Workshops, arranged for a series of offerings to teach caregivers how they can help children succeed in school. True to the collaborative spirit that CO-SEED works to promote, the workshops given by the Partnership Advancing the Learning of Mathematics and Science were co-sponsored by Malden's MassPIP (Parental Involvement Program) Coalition, Beebe School PTO, Beebe School's Parent and Community Involvement Committee, Partnership for Community Schools in Malden and Malden public Schools.¹³

The community perspectives solicited during the Bridge to the Future Visioning Days primarily suggested that Beebe School should focus over the next decade on issues related to the environment. Examples of the types of products envisioned for Beebe's future were wide ranging, and included the use of many local resources, such as:

- Young people are stewards of Fellsmere Pond;
- There is an environmental page in the local paper;
- We are taking care of things that we don't see and using environmentally sound products;
- We will have stations on a nature walk for fitness available for the entire community, a greenhouse roof garden, recycling in every room including the cafeteria, and committees of students to do clean up around school;
- There will be a big project outside school with the young people involved with legislators and grant makers;
- We will adopt ideal environmental locations such as Fellsmere Pond to act as outdoor laboratories;
- There will be activities done with the Stone Zoo;
- We will have classes doing a thesis statement with an environmental theme;

school and community, his seventh grade students, working as chemists, analyzed tap water for residents who brought samples in during the Showcase 2001 event.

¹³ Workshops offered included: How Parents Make a Difference, How Students Learn Best, and Testing: What Your Child Knows.

- Students will produce a cable program about recycling;
- We will create a mini natural science museum using objects the students find;
- We will have an aquarium and live plants in the entryway, indoor hydroponics gardening, and a desert garden;
- There will be a cross-curriculum, multi-school project;¹⁴
- There will be a community health clinic at school;¹⁵ and
- We will have birdhouses around school, a learning garden, butterfly garden, and a vegetable garden. (As noted below, the butterfly garden soon became a reality.)

Environmental Learning Center Partnership

The Family Math and Science Day at Stone Zoo -- another activity designed in collaboration with the MassPIP Coalition and Beebe's Parent and Community Involvement Committee -- took place April 28, 2001. Kim Kezer, an educator at the Stone Zoo and CO-SEED environmental learning center partner with the Beebe School, organized and planned the math and science-oriented stations at the Zoo which were staffed by trained parent and child pairs who conducted lessons for visitors. This event was very successful in getting students and their parents to the Zoo, in utilizing them to teach math and science concepts at informational booths and in making people aware of the collaborative effort between the Beebe School and the Zoo.

Kezer has been invaluable in helping Beebe educators and students access the resources of the Zoo. At the same time the teachers and students are helping the Zoo meet its educational outreach mission. As an innovative math and science exercise, students are making enrichment play toys for the animals. The Family Math and Science days were a tremendous success, with attendance of well over 300 individuals from the Beebe community, including over 100 student and parents leading activities around the Zoo. The Zoo's administration is likely realizing that by utilizing the community more, their pool of resources goes beyond their immediate staff and an effective partnership can be of benefit to both parties. CO-SEED site facilitator, Bo Hoppin, points to the

¹⁴This suggestion, in particular, indicates an orientation compatible with the CO-SEED philosophy of integrated collaborative learning experiences.

¹⁵ Thinking in terms of shared resources indicates another CO-SEED orientation to be responsive to local needs while maximizing the capacity of area resources. Utilizing an existing school building in a multi-purpose capacity indicates an orientation to think more inclusively about one's community, its resources

importance of the liaison with the Zoo as he comments "[This partnership] can set it up to have...people teach each other. Kezer's presence there has been huge. She has brought a lot of animal and aquarium expertise into the school." As many of the ideas generated during the Bridge to the Future Visioning Days reflect a strong desire to include environmental issues, the presence and support of someone like Kezer is critical to the inclusion of relevant local environmental resources.

Robin Jorgensen's Journey

The Magnet Program Focus Teacher at Beebe School, Robin Jorgensen, fulfills a critical role in facilitating CO-SEED work and in relationship building between school and community. Addressing the progress of the environmental and community focused work at the Beebe School, Robin Jorgensen made the following remarks at an Education Grantmakers Conference this past year:

I want to tell you about two community-based projects that show our efforts to increase student achievement by involving the community in our schools and our students in the community.

Last year Malden had the embarrassing statistic of only recycling 3.4% of our trash. As the Mayor and the Department of Public Works looked at the figures, they knew we had to do something. That percentage was really bad. I have heard that the Mayor said, "Beebe is the environmental school. Let's get those kids at Beebe to do something about this." This was so exciting! They took us seriously! This remarkable leap could have taken years to achieve and just months after our opening, we were given this gift. The Mayor of our city realized that students could do real world projects, learn something, and make a difference.

Working together -- the sixth grade teachers, Bo Hoppin from Antioch New England Institute -- and I developed lesson plans for a recycling unit. The sixth grade teachers agreed to take a risk and try using Fridays as project days. Each Friday, after an introductory lesson, they allowed the students to work in teams on their own to develop their projects. We had the students become the teachers as they developed interesting ways to teach Malden residents Why, What or How to Recycle. One of the parameters

and needs.

was, "please don't bore me". In April, we opened our schools to the public. Showcase 2000 was an event that showed what the students in our theme schools were accomplishing. The Recycling Education Fair produced by the sixth graders was Beebe School's main event. Projects included games like Plastic Basket -- a survey result report which showed how many trees in paper that Beebe Middle School used each week, a create your own recycling poetry project, and a puppet show. Besides the parents and public, other students in the school were invited to our fair. We had a great time and learned a lot.

I wish I could tell you that Malden's recycling figures shot up and we solved our town's recycling problem. I don't know the figures yet, but I know that the problem is too big for even 100 motivated sixth graders to solve. But I can tell you some positive student outcomes.

The evidence I will give involves two groups of students. The first group had a sixth grade girl, I'll call her Emily, who was a major attendance, discipline and academic problem. Many of us had never seen her in any positive light, indeed the police had been to our school to see her. She had at least two different caseworkers. As Emily's group developed a puppet show about recycling, we began to see a difference in her. She was in school and on time. She was actively engaged in her project and interacted positively with her peers. Instead of snarling and swearing at adults, Emily revealed a charming side, as she needed our help to get materials and support for her project. She was very excited about the actual day of the presentation and invited three guests -- who did come -- her mother and the two caseworkers.

The other groups of students I want to tell you about were three sixth grade boys who produced a video about trash and recycling. Two of these boys were special education students who had never been recognized for anything. Their efforts so impressed a City Councilor that he got our Department of Public Works and our local cable access television station to work together with the three boys and me. We produced a video about recycling to be released on our local cable channel.

The second community-based project involved tap water and a local pond within walking distance of our school. Instead of teaching the chemistry unit straight from the textbook, the seventh grade teachers worked up a unit to teach basic chemistry through testing of tap and pond water. The students brought water from home and tested it in

class. They also visited the pond and while they were there tested the water for pH and dissolved oxygen. They then took samples back to school for further testing. They are also creating a map of the pond showing the plants and physical features around it, and the pH and dissolved oxygen at various points.

Two days after the field trip to the pond, our school had parent visitation night. Usually this is a time when a teacher hears complaints and concerns from parents about their child's grade. The seventh grade science teacher -- this is her first year teaching, she is a chemist who is changing professions. -- was so excited after meeting with the parents that night that she called me at home at 10 p.m. Parents had been lined up down the hall to tell her how excited their children were about science and how much they enjoyed the project. She stayed 30 minutes longer than the time required because she didn't have the heart to turn them away.

These two projects show how using the environment as a theme for lesson plans with a real world focus, especially ones which involve the students' community, can change the way that teachers teach, and can help students learn by increasing their interest and involvement. Our school has just started down this path, but we have already seen benefits in increased teacher enthusiasm, student involvement and motivation, and parental interest. I look forward to the rest of the journey."

Educating people within and outside of the school is an important part of the work Jorgensen is involved with. Working to make the work as inclusive as possible is an important way to create energy and momentum locally. Emphasizing the communal nature of this work helps people realize they are part of a larger endeavor with potentially far-reaching implications.

As Maureen Abber, community member from Malden noted,

"It is really a terrific feeling to be part of something that is gaining momentum. I am very excited about next year. Thanks to your efforts in getting everyone together and helping lay the groundwork that is needed to develop significant parent involvement and bring about positive energy and change, I think we are on our way to establishing a strong parent and community involvement network at the Beebe."

Work at the Site

While great strides have been made in inviting the community into the school and setting up committees that involve educators and community members to work on specific goals, only several project-based learning activities were actually implemented this past year -- the first year of CO-SEED work at this site. This is not surprising since there was significant groundwork required in order to build a strong foundation for future efforts. The CO-SEED facilitator, Bo Hoppin, was instrumental in getting teachers first to visit and then become comfortable accessing their local resources, the Fellsway Reservation and Fellsmere Pond. As a result of the work he did, some teachers designed units that involved students working at these local natural resources.

In another significant effort, second grade teachers collaborated to research, design and build a butterfly garden beside their school -- an activity that required collaborations with the parents of many students. The impetus for constructing the park was to recognize the contributions of Ellen McCarthy, a local educator who had taught in the Malden schools for 30 years.

Teachers began this undertaking by having students research butterflies and the plants they used for food first during their larval stage and later as butterflies. One teacher reviewed the precision with which the students undertook this sizable effort: "We didn't restrict [students' choices]. We wanted them in charge of this. Almost all picked the Eastern Swallowtail...Once the research was complete, they figured out how to space the garden. They had to refer to their research of the plants, figure out how tall it got, how far to space it. Then students designed plot plans. The Building Department worked with the school to help them choose a site, rototilled the designated area and helped install an irrigation system. When the kids saw the actual plot, they got really excited. I don't think they realized it would be a 40-foot garden. They were digging up to their elbows. Students chose plants to order. The art classes painted rocks for the border. Parents did a lot of backbreaking heavy pick-up work. They helped plant bushes on a hill. They really got into it. All of this work for the butterflies. We will eventually put a permanent bench out there."

The dedication ceremony for the garden was a powerful memorial for McCarthy, who had recently passed away. Another teacher noted the importance of the parents to this effort, "I involve my parents a lot. Their support is key. I always invite them in for

different things. It is nice to see everyone out there digging [the garden] together. We needed the parents. They were in charge of taking the heavy stuff."

Reflecting on the successes and the challenges of the project, teachers planned innovative ways of building on and extending the work next year. One noted "We can go back and do all kinds of things in addition to the butterflies. I want to try tagging them in the fall. [Researching that] will be my summer project. I want to utilize the garden for other projects. Other classrooms may want to use it. Someone could make field guides."

In the June 8, 2001 edition of the *Malden Observer* newspaper, a front-page story with an accompanying picture featured the work and professional development opportunities at the Beebe School -- an indication that the work of the school is becoming more public. With this increased awareness comes an invitation for more community participation. A picture of a student releasing a butterfly at the dedication of the butterfly garden introduces the story that highlights the significance of the garden's dedication. Acknowledging the benefit of getting Beebe teachers outside of the school building and utilizing the expertise of local community members to inspire, create, and model future teaching and learning opportunities, *Observer* reporter Jeffrey Gould notes, "As a result, next year those teachers' lessons will no doubt bring Beebe students out of their classrooms and into the world." This in, indeed, a changed expectation for how and where learning will occur in Malden.

Moving Forward

It is clear that the more opportunities the teachers have to get out and experience this type of education as learners themselves, the more likely it is that they will become comfortable taking their students out to do this sort of exploration. Additionally, they will gain competence in facilitating the process of project and community-based lessons. After having accompanied Bo Hoppin to Fellsmere Pond, teachers spoke of how they planned to utilize the site as a learning resource. After the walk through the historic graveyard led by a Malden citizen well versed in local history, teachers discussed a wide variety of possible project options -- a science project that studied deterioration, a mapping project of the cemetery, and a historical accounting of the people there. Firsthand participation by the teachers seems to spark an enthusiastic response to this style of teaching and learning as -- after the Summer Institute which CO-SEED hosted

for teachers, community members and students from their sites -- teachers once again spoke of innovative ways they could engage in inquiry and discovery with their students.¹⁶ As teachers talked together about possibilities, the potential projects reflected an increasingly interdisciplinary approach as teachers of different subject areas considered ways to build upon each other's primary investigations. The mounting excitement of the teachers toward this work is likely a precursor of how the students will respond to project and community-based work.

Beebe is establishing a good base, one that offers strong possibilities for linking community to school and school to community as they build their 'Bridge to the Future.' They are inviting parents and community resource people into the teaching process and are orienting their teachers to go into the community in search of natural and human resources. As these relationships mature, new opportunities for all of the parties involved will appear -- strengthening the bridge, and the entire community.

Recommendations for Beebe

- This Malden site is a pioneer in bringing CO-SEED work to an urban environment. Educators in the school must continue to be creative in order to take advantage of local environmental resources, such as the Malden River, and collaborations with the Mayor's office.
- Build on the success of the butterfly garden project by helping teachers take the work farther, identifying multidisciplinary lessons that could be based on an aspect of the garden.
- Use the well-respected CO-SEED teacher professional development model to encourage a collaborative way of teaching and learning among all faculty.
- Respond in some way to the Mayor's challenge of having Beebe's students encourage increased recycling in the community by having the students conduct studies, develop surveys, or undertake a relevant project.
- Help teachers gain access to written resources, such as a history of Malden, that would reinforce the lessons from previous professional development days.

¹⁶ It is extremely valuable for educators to first be learners in experiences such as these in terms of building

- Provide teachers with examples of student work from other sites that illustrate exemplary community and project-based efforts.

**GORHAM MIDDLE AND HIGH SCHOOL
GORHAM, RANDOLPH and SHELBURNE, NEW HAMPSHIRE**

"Our community profile brought people together to talk. For our Family Fun Festival five years ago, we only had teachers and parents there. Now the Appalachian Mountain Club, Trailmasters, the hospital, and a local dentist office all have booths with fun activities. [In the past] we may not have even thought of inviting them. All those entities came and joined our school...CO-SEED is about the opening of doors."

- Katy Avery, Edward Fenn Elementary School Teacher, Gorham, NH

Key points for Gorham

- While it may appear that the community-based development at this site has been modest, the changed way of thinking in terms of seeing students as genuine contributors and including them in the life of the town has been positive and significant.
- Teachers had Project Learning Tree training during their early work with CO-SEED.
- While it may appear there are few community-based curriculum designers in the schools, it is significant that there is now an annual expectation that high school students will work in increasingly complex projects each year in the Town Forest.
- Students perceive a positive change in how lessons are presented and have come to expect that some of their efforts will be place-based.
- There has been teaching and administrative turnover in the school.
- Elementary principal, Paul Bousquet, is Chair of the SEED (CEEC) team.
- Student participation on town committees has not been potent since the community profile.
- Participation in the SEED (CEEC) team has been dwindling.

"What takes place in a classroom is a minor part of the whole landscape of what makes up a kid."

- Jim Hunt, principal, Gorham Middle and High School, Gorham, NH

As Katy Avery notes above, CO-SEED is about a changed teaching and learning dynamic, changing the education 'business as usual'. For the past three years, CO-SEED has been developing a base at Gorham. New options were enthusiastically explored during the January 2000 Community Profile as citizens of the town considered meaningful ways to involve students in the life and work of the town.¹⁷ However, the committees that were established at that meeting have faded significantly and the students who showed great promise in terms of becoming real contributors have lost these important vehicles for the contributions of their work.

Turnover in school leadership in Gorham could cause a significant setback to the work at this site.¹⁸ The secondary school principal, Jim Hunt, who was a participant at the Community Profile and who has been supportive of place-based work -- so supportive that he goes out of his way to be sure students have transportation to their fieldwork -- is leaving the school system. Additionally, other members of the high school teaching staff are leaving. Reports from the secondary level indicate that morale among faculty is low. Staff turnovers can be devastating in terms of sustaining the philosophy and momentum that characterize place-based work. One test of how well established place-based work has become in a site is to see if the work continues -- even amid a significant amount of leadership turnover. This outcome often depends on whether there are an adequate number of people with a firm understanding of the work, as well as an involvement in and commitment to continuing these efforts. As Nikki Pizzo, of the Appalachian Mountain Club -- the CO-SEED environmental learning center educator -- notes, it is critical to keep students and community members aware of their local resources: "After Freshmen Forest Field Day, it was obvious that many people had had no idea that the town even had a forest."

"We (on the CEEC team) are creating ways of getting educational systems to young people that I used to get from fishing with old German guys on the Wolfe River in Wisconsin. I was responsible for my own learning. If I didn't learn a little German, I didn't catch any fish. Our educational system is having to change. We're trying to create

¹⁷ Projects for students included such important work as rewriting town planning documents for Gorham, Shelburne and Randolph. Their interpretation of these plans would ultimately engage them in reading comprehension, learning to write for specific audiences, prioritization, decision-making, civic accountability and public presentation. The fact that students felt trusted by the community to engage in this significant work would likely result in work of a high quality.

systems. We used to learn from extended family but now the educational system has to do it. When we were kids, there was one way to teach. We're starting to realize these kids aren't dummies. CEEC is pushing that. [One high school student] has teachers who think he is [not smart] and others who think he is brilliant. [That is because] he asks 'Why?' He wants things explained to him. That's what I love about CEEC. If it weren't for this, kids like him wouldn't stand a chance. They wouldn't get through science."

- Dave Dernbach, Director of Trailmasters, a CO-SEED environmental learning center partner, Gorham, NH

In Gorham, the SEED team -- called CEEC, Community Environmental Education Committee -- provides the impetus for the project-based work. Chaired by a supportive elementary principal, Paul Bousquet, the task of keeping the work alive remains with the CEEC team, a group composed primarily of teachers, the environmental learning center partners Trailmasters and the Appalachian Mountain Club, and a few community members. These SEED team members represent the crucial 'keepers of the flame' -- the individuals in whose hands may lay the future of place-based projects.

Local forester, Haven Neal, manages the Town Forest and is frequently involved with students and teachers to increase their knowledge of this local resource. A respected community member, Neal not only understands the philosophy of the work, but is also an important link with the community. He enjoys working with the young people and, in the recent dedication of the Town Forest to Paul Doherty, Neal facilitated the work of the high school students as they taught lessons around planting evergreens and methods of determining tree age. Kathy Benoit, a high school science teacher and CEEC team member, draws upon Neal's expertise of the woods and its inhabitants for the units she designs for students in their freshmen, sophomore and junior years. After her initial exposure to CO-SEED, Benoit has intentionally focused on getting students out into the woods each year to participate in a wide range of activities. This focus helps build an awareness in the students of one of the town's significant resources. As noted by Katy Avery, a teacher at the Edward Fenn Elementary School, "Because of the involvement of the high school kids in the Town Forest, they're learning about a resource that they didn't know. Now they know where it is and what it's about."

In Gorham, high school students have the opportunity to use the town's natural resources as a vehicle for learning. As freshmen, students participate in Freshmen Field Day, an event that involves students in tree identification, trail maintenance and wildlife

assessment. Building upon that experience, sophomore work includes a focus on winter survival and orienteering. As juniors, students collect data on the wetlands. Some seniors choose to extend selected parts of their previous work into their senior project, the culmination of which has become an open event for sharing student work with the larger community. Principal Jim Hunt thought that sharing projects in this way would be an effective manner in which to include the community in the work of Gorham, Randolph and Shelburne students. In addition, this type of public presentation serves as a form of assessment as it requires students to organize and analyze their own work, as well as learn how to communicate the essence of that work with a larger audience.¹⁹

The purpose of Freshmen Forest Field Day is to get community members who are resources [working with kids out in the woods.] I always hear people say, 'I never knew this was here.' For many kids, it's the first time they've gone out in it and sat and thought about it... We reflect on learnings in class and in the woods. [I am working to] involve community and kids in an ongoing way."

- Kathy Benoit, High School Science teacher, Gorham, NH

Early on in their work at this site, CEEC encouraged the training of the district teachers in Project Learning Tree (PLT) -- training that ultimately established a base for project type work with an environmental focus. Benoit speaks to the strong foundation this effort set, "Because of CEEC all but three high school teachers in Project Learning Tree. It's an understanding now. When I take my class to the wetlands or the Town Forest, they know learning will take place." Other comments support the impact of Project Learning Tree's training and curriculum:²⁰

"I wouldn't use the PLT manual so much if I was not trained. Nikki Pizzo took us on a hike and helped with tree identification. I wouldn't have been aware of that trail if we hadn't done it with her, and I live in Gorham. If you've never been on a trail before, you may be hesitant to take kids out." Jen Blair, teacher, Edward Fenn Elementary School

¹⁹ As Principal Hunt notes, "For their senior project, kids work independently on something that benefits the community. They can coach Little League, do sculpture. It has to be an independent study. At the end of the year, the whole community comes to the gym to see it. The senior project, up until now, happened in a vacuum. This puts nice pressure on kids to have something tangible, to answer questions of the community, to use media and to show the steps they went through in the process."

²⁰ The provided Project Learning Tree curriculum not only provides teachers with a base from which to build but also outlines the state frameworks each lesson addresses.

“[Having training with PLT] opened up doors. Teachers now say they can do that. It is a matter of knowing. We know whom to contact now. Now, teachers need others teaching them less.” Paul Bousquet, principal, Edward Fenn Elementary School

“It would help to have a list of resources teachers could access from year to year -- people and materials. CEEC has been helpful in that they give support, materials and training. The PLT training helps build bridges between the school and the community.” Jen Blair

“PLT activities are cross-referenced with the New Hampshire standards and across subject areas. This takes away an extra step for teachers.” Jen Blair

Teachers who request support from the SEED/CEEC team in the form of mini-grants -- CO-SEED funding to support expenses such as equipment or transportation costs associated with their projects -- sometimes are asked to add a community component to their work. Their colleagues on the CEEC team suggest ways to help extend their lessons and link them with relevant individuals in the community. For example, last year when an art teacher wanted to teach students sculpting, Benoit suggested that the project involve sculpting a memorial to a well-respected local citizen who had recently passed away. Though the sculpture activity was never implemented, the suggested tie to the community would have served to make the sculpture relevant to all involved -- a more meaningful memorial for the people of the community, a recognition of the citizen's contributions, and a lesson in values for the student participants.

Often, students who are involved in this type of work revisit it years later, indicating a strong connection to the significance of the experiences. This spring, when the Town Forest was dedicated to local woodsman Paul Doherty, one high school student designed and made the memorial plaque in his honor. Students from the grade school attended the dedication and students from the high school were involved in reading excerpts from Doherty's book, *Smoke from a Thousand Campfires*. After the readings, high school students taught elementary students to plant trees, identify wildlife habitats, and recognize various microinvertebrates that inhabit the streams. One of the environmental learning center partners, Trailmasters, provided the conceptual and organizational structure and some of the field expertise for this event. This example of the town and school working together illustrates a new way of thinking in this place.²¹

²¹ Including students as educators, as readers during the dedication, and as audience is an important

In the 2000-2001 District Education Improvement Plan for Gorham, CEEC is part of the process for strengthening the implementation of Community Service-Learning activities. Formalizing the structures that acknowledge the value and potential of committees such as CEEC is an indication that their contribution is valued. Further evidence of CO-SEED's impact would involve the inclusion of goals that match or reinforce the CO-SEED philosophy. A focus on Community Service-Learning may be a step in that direction.

"CO-SEED gave us the community base. Now there are other people to support this effort. We can get help from the outside...CO-SEED gives me the language to push my vision ahead. It has helped bolster the communities confidence in what we're doing."

- Rick Nannicelli, Principal, Great Brook School, Antrim, NH

This Changed Way of Thinking Presents New Opportunities

A lasting legacy in places where CO-SEED work has taken hold is a change in the way teachers think about structuring the learning experiences for students. For example, Gorham science teacher Kathy Benoit along with math teacher Jean Malick are now planning lessons together, designing a curriculum that complements the work each does in their individual content areas. It is this collaborative approach, working in CO-SEED's community orientation, that contributed to the development of "Teaching Math and Science using Community Resources," a comprehensive unit that received funding through the Growth Initiatives for Teachers (GIFT) program from the GTE corporation.²² Tapping into their previously established community collaborations and relationship building, these teachers received important support from their fellow citizens -- local

change. It is likely that several years ago the event might have been primarily adults with no educational component build in. Trailmasters, under the direction of Dave Dernbach -- working with Kathy Benoit and her ecology class students --was instrumental in the design and implementation of this student-town collaboration.

²² A necessary component of qualifying for GTE's GIFT program is the design of a School Enrichment Project that integrates math and science. According to GTE's guidelines, the proposal must state "project goals and benefits, including any particular problems of the school or community that are addressed." In their proposal Benoit and Malick write: "The plan is to take each grade into the vast forest that surrounds northern New Hampshire to learn about the forest and integrate classroom math and science into a tangible experience that students can draw from in their future. Here is a breakout of what each class will be doing on the field day. Freshmen -- History of the area (Town Forest), tree identification, stream flow analysis, trail maintenance and conservation, mathematical assessment of woodlot and wildlife. Sophomore -- winter survival, shelter building, proper clothing, computer aerial survey, and orienteering. Juniors -- wetlands study, computerized water and soils analysis, stream flow studies. Senior -- special projects with the direction of the math and science departments."

foresters, the fire and police departments, government representatives of Gorham, the student's parents, and the Gorham School District. In addition, they received additional support from the Community Environmental Educational Committee team in the form of a grant of five hundred dollars.

The work at the high school in Gorham is increasing in complexity as students learn how to map tree plots in the Town Forest. Using Global Positioning Systems to plot their location, students locate a stand of trees, take a variety of tree measurements (diameter, height, core samples, prisms), and then record the data for use by the foresters.

The initial Project Learning Tree training, that included a comprehensive curriculum guide, provides teachers with established and tested lessons upon which to build. Tailoring the learning lessons to their local region is relatively straightforward as it begins simply by making new observations outside of the school building. This broadening learning laboratory provides more opportunities for the students to work with adults in the community. These new relationships and related assistance with the teaching help lessen student-to-teacher ratios, while providing teachers with lessons that can easily be expanded and tailored to meet specific outcomes. These lessons can then form the base from which to build more efforts. Project Learning Tree has been critical to the success in Gorham, as it provides concrete examples of activities while encouraging an adaptation to a specific place.

Building Community Within and Outside of the Classroom

"My job is to get kids to think about the quality of life and about the community. We have a remarkable school, a remarkable community. Yesterday was an activity day. We closed at 12:15 p.m. We had computer activities, pumpkin carving, hiking up Rattle River, mountain biking and canoeing. These sorts of activities allow us to see kids in a different light and create a nice sense of community in the school. I spoke with a kid I'd never spoken with much at all. I asked him about trees. One kid knew all of the trees. Normally he is a class clown and the butt of jokes. He has been hunting since he was knee-high. In the woods, though, he was in his place."

- Jim Hunt, Principal, Gorham Middle and High School, Gorham, NH

There are particular teachers in each town who are crucial to the place-based work there. These teachers understand the importance of community relationships, are comfortable with project-based learning and are experimental in terms of allowing

students to individualize some aspects of their efforts while working within a general framework. While many teachers do not receive training in these approaches during their undergraduate studies, these important skills can make the difference between the success or failure of the implementation of place-based, community efforts.

Teacher Visionary, Kathy Benoit

"I started teaching in 1984. I was just like the teachers I student taught under. I was a lecturer and didn't know there was anything else. Then I realized after three years of teaching that students do better by doing. Now I am a non-lecturer teacher who tries new things. If anything, I try too many new things. As a science teacher, to talk about something is so boring. I know a good science teacher and I drill him with questions at professional development meetings. With a resource like CEEC, I get different ideas. CEEC gives me the resources to help the ideas come through. Now they help me think of new ideas. It (CO-SEED) is growing in this school. That's how the whole school benefits from CEEC -- everyone working together. It's given me the support so if I want to be innovative, I can be."

This approach causes teachers to learn new things about their place. "For instance, with the Town Forest, I never knew this was here. The Town Forest is also the town watershed for Gorham and Randolph, two towns with historical ties. For many kids, it's the first time they've gone out in it and sat and thought about it." Building understanding onto a base of awareness in this manner helps students come to know and care about their place.

Katy Avery gets funding support from CEEC to support some of the work done by her elementary school colleagues. Avery fulfills the role at the elementary level that is performed by Benoit at the secondary level. As CO-SEED teacher visionaries, they are liaisons between their fellow faculty and the human and fiscal resources available through CEEC. Because they understand the CO-SEED philosophy, they are able to structure and articulate how units can be designed so that they have the essential elements that warrant CEEC support and comply with the CO-SEED mission. As we will see later, Teddy Reichert fills this important role at Rivendell.

"With any of the units, there are experts in the community. People who are much more expert than I am."

- Jen Blair, Teacher, Edward Fenn Elementary School, Gorham, NH

One year ago, Gorham's teachers spent a day brainstorming with their two environmental learning center partners, Trailmasters and the Appalachian Mountain Club, on a variety of project possibilities. As a result, with the support of CEEC, almost every grade level engaged in community-based work. Last year, Trailmasters had staff from Americorp involved in the work, while this year that staff was not present and teachers missed them. With the help of the Americorp staff a year ago, Avery and her students created an historical website for Gorham. The students wrote personal narratives about their own lives and asked elders to write narratives about their experiences in third grade. The class read and discussed the stories comparing life in the past with life in the present. Their observations and thoughts about the differences were posted on the website.

"The biggest impact [of CO-SEED] has been that now the community is working with teachers and understanding what we do."

- Katy Avery, Teacher, Edward Fenn Elementary School, Gorham, NH

Another third grade teacher created a timeline of Gorham. The students wrote of Gorham's history as a railroad town and, noting relevant events, brought the story of Gorham up to date. As Avery notes, this work made a huge impact on people, "A lot of community members wrote thank you notes as thanks for including their narrative." This community-based work is particularly important as it allows the school to give voice to both students and community members. It provides a space for reflection as people compare the changed times and it positions the school in an inclusive role, giving visibility to community members and the work of students. The historical archive it provides is a lasting story for this community.

"As a teacher, I like it because there is somewhere to go for people resources, funding, ideas and support. There is an easy process to get the resources. I used to get it out of my own pocket."

- Katy Avery, Teacher, Edward Fenn Elementary School, Gorham, NH

Revitalizing the CEEC Team

CEEC team membership is dwindling, and this will have far reaching consequences for the long-term success of CO-SEED work. As Avery notes, CEEC never really "got to the point of involving kids and the community. We talk about how to get there. A lot of the parents are no longer on the committee. They don't come this year at all, the parents who used to help."

Only a few teachers seem to be tied into the philosophical understanding of CO-SEED. Some recognize it for access to resources, for example, a way to pay for an artist-in-residence. The people who make the proposed lessons community-based or who recognize how the unit can be expanded to include a community component are generally Benoit or Avery. A positive next step would be for more teachers to start thinking together about how they can integrate the work of their discipline into the larger community-based work of their colleagues. One strong example is Benoit's and Malick's collaboration at the high school within the subject areas of science and math.

Benoit sees these collaborations spreading to other classes, such as the English classes -- now engaged in a nature writing course -- who go directly into the forest to study. Additionally, the social studies teacher is conducting a history component that ties into Freshmen Forest Field Day. Benoit notes, "It takes a CEEC project to make them comfortable to collaborate, to think it can be done. Juniors went out for the first time on the Junior Jamboree to do water and soil testing to determine vegetative cover. They never went out before. The chemistry department got involved. Every department is involved except for French and industrial arts." This momentum and inclusion of the work is critical to the long-term continuation of teaching in the CO-SEED philosophy.

There are several areas in which CO-SEED could strengthen the sustainability of their philosophy in this, and other, sites in which they now work. The development of a list of local resources -- individuals, materials, and information -- would be of importance to teachers new to the school, or new to this way of teaching. CEEC has been helpful in this regard in that they share support, materials and training with educators. Establishing a comprehensive listing of resources, or providing books and other materials teachers can share, will be especially helpful in terms of sustainability after CO-SEED is no longer a physical presence at sites. Making certain this framework of support is in place, as well

as helping people acquire the skills to build and support school and community partnerships in an ongoing way will be crucial to this effort.

Often community members speak of their desire to help young people by getting involved in their learning. Maintaining these individuals as present and future resources is an important first step in this effort. For example, a community member from Gilford spoke of how wonderful it was to have students visit his farm during the spring when the swallows were building their nests. He showed the young people how to use long poles to blow white string into the air which the swallows swooped down and captured to use in the building of their homes. These experiences, for both student and community member, are impossible to achieve without these resources readily available to the teacher.

The biggest value of CO-SEED is having somewhere to go for money or help with a project you want to get going. I've met a lot of community members I didn't know were willing to help the school. Haven Neal spends so much time. Also valuable is the connection with the town selectmen. From these community connections, I've gotten to know the water treatment guys.

- Paul Bousquet, Principal, Edward Fenn Elementary School, Gorham, NH

Community Member Profile: Haven Neal, Town Forester

"Working with kids used to be top down -- we did not make them part of the process. [Now we know] that if you're going to have something that is real, you need to empower people." Haven Neal is empowering local citizens to be a part of their own woods. Through engagement with this natural resource and the application of scientific skills and concepts to understand more about those woods, students are learning about choices and impact. As students read the work of a local woodsman and writer, Paul Doherty, they gain an appreciation of literature and the ways writing is used to express beauty, intrigue and awe. By selecting and reading excerpts from Doherty's book *Smoke From a Thousand Campfires*, students are able to understand more about Doherty's interpretation of this place. As these same students work to convey to elementary students scientific and environmental concepts, they too are being empowered as scientists, researchers and teachers. Speaking to this empowerment, Neal says:

Neal continues, “Students who have been working in the woods for the past three years are introducing the elementary students to it. It's powerful stuff, emotional. We decided we need to teach kids about the environment and the place. The thread that goes through these stories is about a sense of place -- the people with their opinions make up the sense of place. We've learned to agree to disagree up here too, I think. There is an involvement of more and more resources. It takes a village to educate a child. I think it's happening in Gorham. We are not just leaving it up to teachers anymore. In using the Town Forest, environmental education is not the only thing we're doing. It is interdisciplinary -- math, critical thinking, communications, engineering -- a lot of interdisciplinary experientially-based learning. And reflection. We don't ever get it until we reflect. We are teaching kids to gauge tree heights by using right angles, sizing culverts for road construction to handle two and a half times normal stream flow. The French teacher is excited about translating signs into French for the interpretive trail.

We've got to give these kids a good base of knowledge so they can make decisions later. Kids are watching me learn. They know it is okay to ask what may seem to be stupid questions. These kids know that this is powerful. They do understand things are happening. The opportunities are more lateral. They are learning from their own experience. They understand that this is different -- it's not quoting everything the teacher said. The role of the teacher is changing from a lecturer to a facilitator.

It boils down to sustainability. What it means to be productive over time and healthy over time. Health is the ability of the forest to continue to function as a natural ecosystem. Kids get it. It's a different kind of education. The question is -- are people ready to deliver it? I don't see CEEC being gone. I think there is an investment in CEEC now. It's becoming institutionalized. The concept will be here [even after CO-SEED is gone.]”

An important test of the impact that the work is having in a site is gained by assessing the way students speak of and understand the work. The Spring 2001 edition of *Kaleidoscope* (Volume 3, Issue 2), a publication of the Journalism class at Gorham High School shares students' perspectives concerning the impact of this work.

Freshmen Head to the Forests in the Third Annual Field Day
by Meggan Robinson

"...Every year there are six stations run by different community members and volunteers. This year Joe Homer will run the station on soils, Nikki Pizzo the wildlife station, Haven Neal the timber management station, Dave Dernbach, the trail maintenance station, Dave and Sandy Telman the tree identification station, and the AMC has volunteered to send another one of their personnel to run the water testing site...

This activity first started in 1999. The Community Environmental Education Committee, CEEC, is really big on familiarizing the students with their surroundings.

Since we have 'the largest uninterrupted deciduous forest in our biome,' Mrs. Benoit thought that the students should take advantage of the opportunity.

Because the idea has such great support from the community and from the administration, there haven't been any major problems in the planning.

With such great success with the Freshman Forest Field Day, other such days have been implemented. There is Sophomore Survival Day when the sophomores go into the Town Forest one day during the winter and survey some of the trees and calculate different information that can be given to the town to help them determine what kind of trees and the heights of trees that are growing in the forest.

The most recent event that was established is Junior Hydrology Day. This is when the chemistry classes go into the forest and test the water in the Town Forest.

This year the students also have another opportunity to head into the Town Forest. On May 25 the Forest is being dedicated to Paul Doherty, a life-long resident of Gorham who did a lot towards getting that land set aside for the town.

After the dedication Mr. Paul Bousquet, principal of Edward Fenn Elementary School is bringing some of the students so they can learn a little bit about the forest. The idea behind bringing students up to the forest is the younger they understand and become aware of their surroundings the longer we will have these resources around us.

Juniors Involved in Environmental Education
By Kate Orsillo

The first and fourth block chemistry classes at Gorham High School visited the Gorham Town Forest May 17 to study the chemistry of the forest and continue their history, as juniors, with the Town Forest.

The two classes, taught by Mr. Richard Merrill, separated into three groups and alternated between three sites in the Town Forest.

The first group of students, with town forester Mr. Haven Neal, examined core samples from various mature trees in a climax area of the forest, and collected soil types, nutrient analysis, and tree type. These experiments helped students understand how the forest matured through time.

Under the administration of the Appalachian Mountain Club soil scientist, Mrs. Georgia Murray, the second group of students compared an area of the forest that was undisturbed with areas that were clear-cut and selectively cut for timber. Here, students measured soil erosion and also examined the nutrients that are available in the soil.

Students in site three determined nutrient levels and soil loss from the water runoff in streams and water from vernal pools. They were under the guidance of Mr. Dave Dernbach, the leader of Trailmasters.

"Hopefully, they (students) gained appreciation for the Town Forest and how it fits into the long range for the town and community," stated Mr. Merrill. He also hopes that the students gained an appreciation for the people who actually run the experiments as part of their job descriptions.

The students prepared for their time out in the Town Forest by conducting the exact experiments that they did in the Town Forest, right in the classroom. These experiments included dissolved oxygen, pH, hardness, ammonia, nitrate, silica, increment boring for growth rings, core samplings, ground samplings for soil horizons and carbon dioxide. These will help the students to understand the chemistry of the Gorham Town Forest.

This is the third time the juniors have been involved in community environmental education in the Town Forest. They have also participated in Freshmen Forest Field Day and Sophomore Survival Day to "experience what they have learned and apply it to something", according to Mr. Merrill. The field trip into the Town Forest is part of the 'community environmental education' that is now instilled in Gorham High School.

“I like to see the students get the job done and have a good time doing it,” concluded Mr. Merrill.

Middle Schoolers Make an Impact on the Local Community
by Erin Desmond

On May 11, sixth, seventh, and eighth graders spent the school day raking leaves, washing cars, and hauling brush. This is the eighth year the middle school has participated in Community Service Day.

Good weather is a must for Community Service Day because students mostly work outside. Eighth grader Courtney Laflamme explained, “We work in teams with two partners, going to houses of people over 55. We do raking, painting, all kinds of stuff.”

Mrs. Hunt (Gorham sixth grade teacher) feels the day is a valuable experience not only for the students, but the residents, as well. “Older people are sometimes a little leery of young students,” she says, “but once they meet them, they often end up telling the kids stories, giving them cookies or snacks, and having a good time.”

Many students seem happy to participate in Community Service Day. Seventh grader Luc Corriveau admits it's fun to miss a day of school, but says one of the best things about it is that they get to help other people.

Learning to help other people is an important part of the lesson when older students become the teachers of younger ones. When reflecting on these experiences, the students often speak of the ways they learned to communicate more effectively with this different aged audience. These exercises give students experience in adapting presentations to target a particular audience -- an important skill to know for effective communication. Working as teachers, students help introduce their younger peers to the workings of the woods.

As the high school students discussed their teaching experiences with younger students, it was clear this work was introducing them to a wide range of real-world skills. Reflecting on their teaching experiences during the Town Forest Dedication, high school students had this to say:

"I learned a lot about the skunk. It's so much different to present to second graders than presenting to even third graders. You have to try to make it interesting so they pay attention to you and don't wander off." - Caitlin Legace, high school student, Gorham

"We're doing the teaching. We've already done this [activity] as freshmen. It is interesting to be on the other side, to see what we know about it. It's easier for us to understand the forest now. Next year is Junior Hydrology Day. This has changed my perspective. It makes you want to come out here because you know more about what's going on. It's easier for us to learn when we're here hands-on. You can actually see what they're teaching instead of just hearing it verbally."

"My favorite teacher here is Haven Neal. We used to come out a little bit. Now we get to come out everyday. Teaching the little kids is something new. We've never done this before. [Teaching] is a lot harder than it looks. You have to talk about something they care about and you have to ask them lots of questions so they'll pay attention because they want to answer -- even if they don't know the answer, they have their hands up. We just want them to see it's fun to come out here because we don't want them to skip out on Freshmen Forest Field Day. They might get interested. We're lucky to have this [forest]. If we were in the city, we wouldn't have a forest. It's right here in our backyard. During Freshmen Forest Field Day, we were out here all day... We tested water down at the Androscoggin River. We just found a pollution point that they (the town) doesn't know about. We think it's coming out of the dump. We're going to try to find out more about what it is. We'll do more testing." - Amanda Globber, high school student, Gorham

This familiarity with the local resources and environment helps engender a sense of ownership among the students -- an important step in fostering an attitude of stewardship of this most precious regional resource. This burgeoning awareness was evident in the answer to a question on whether the source of the community's drinking water was the Androscoggin River, "No, [the Town Forest watershed] is our drinking water. But if we can help keep all the water clean, that is our objective."

Recommendations for Gorham

- Ensure that there is a vital role for students early in the planning process. Asking students about their ideas of community needs and/or working with them to collect data to determine needs is important in establishing ownership of the work at this level. Imposing on students a project in which they have little input or determination

of the direction of inquiry will likely result in little investment in the work. As one teacher commented, "I wish more students initiated activities."

- Work explicitly to help the community understand the work by inviting them into the process, listening to their ideas and concerns, valuing their contributions, and organizing the work in a way that keeps them involved. Take steps that increase access to the process by using good communication, such as regular newsletters, calls, or potluck events. Rotate the days of standing meetings so that people who serve on other committees have the opportunity to attend.
- Pay particular attention to the make-up of the SEED team, as that group is critical to the success and integration of the work. Be intentional in the selection of a diverse group of students, teachers and community members.²³ Constantly and intentionally working to grow the CEEC team is important as the CO-SEED stance is one of inclusion.
- Be sensitive to how communication works in a small town. Ensure that decision making is done in an open manner so there is a better chance for wide support of all decisions.
- Share more widely the CEEC brochure that outlines the structured set of guidelines to inform teachers of CO-SEED's expectations for a project. While the SEED team may offer suggestions on ways to deepen the lesson -- perhaps making it more interdisciplinary or more inclusive of community -- the teachers will have a sound base upon which to ground their initial proposal
- Be knowledgeable about and sensitive to the dynamics of how things get done in the community. Build a foundation of respect so that relationships evolve naturally. Be sensitive to the politics involved between collaborating organizations
- Gorham would benefit from the presence of a person dedicated to working with teachers to do community-based work, in the manner of Robin Jorgensen at the Beebe School.

²³ A spin-off of town selectman Mike Waddell's early involvement with CEEC was the connection he made after seeing another district's student involvement with the Androscoggin River. He realized the potential for Gorham's students and he made the community connection. Additionally, Haven Neal is often cited as an excellent example of a knowledgeable and motivational resource person who provides an enriching presence on the committee.

**RIVENDELL INTERSTATE SCHOOL DISTRICT
ORFORD, NEW HAMPSHIRE
FAIRLEE, VERSHIRE, and WEST FAIRLEE, VERMONT**

"At the root is how to improve relationships to develop culture and climate that will promote learning by all -- not just student learning."

- Superintendent Noelle Vitt, Rivendell Interstate School District, NH/VT

Key points for Rivendell

- While CO-SEED has primarily used its resources to establish a structural framework in which to work at this site, the school district is interested in the development of a rigorous community-based curriculum.
- There is significant optimism that the Cross-Rivendell Trail being built will generate cohesion among towns, as well as provide a wide range of collaborative opportunities for students, teachers, and the community.
- The high degree of turnover in the leadership of the school system, including the superintendent and principals, may have reduced the priority of place-based work in the schools, as a significant portion of the philosophical groundwork that was initially laid with administration will need to be re-established. (Noelle Vitt who has moved from an administrative position into the position of superintendent knows the history of CO-SEED work at this site. She sees the mission of Rivendell being very much about community and environmental education.)
- The Community-School Organization (CSO), which was initiated through Rivendell's Community Profile, is a vehicle for dialogue between the community and school constituencies. The intentional use of the term 'community' is meant to be inclusive of many individuals in the community, not solely parents of students.
- The CSO supports important sectors of the school experience for young people, such as the sports program. As one participant of the Community Resource Council (CRC, a council of the CSO) noted, "Without them (the CSO), there would be nothing."

- While there are examples of project- and place-based work being done by some teachers, work following the CO-SEED philosophy has not become common in the system.
- The CO-SEED / Rivendell connection needs to be strengthened. There is little ground level realization of the CO-SEED philosophy and teachers are unclear about how to access relevant resources.
- It is not apparent that much community-based work is being done beyond the arranged partnership projects that environmental learning center partners offer.
- There is a diverse membership on the SEED team -- a strong foundation for future growth.

Communication within the district is very effective, in large part due to the strategy of using a regional newsletter.

- The Rivendell school budget was approved on the first vote. This support from the townspeople can be attributed in part to the effective communication and visible presence of school representatives in the community.
- CO-SEED staff have helped secure fiscal resources for the site. Steve Glazer, who worked with the CO-SEED project in Rivendell, wrote the grant that supports the work of Jayson Seaman regarding character education and transitions. Jayson wrote the grant that continues to support his and others work in service-learning.

The newly created Rivendell Interstate School District has undergone major change over the past two years. Following the tumult that was the natural outcome of the creation of a school district that reached across the Connecticut River to join communities in New Hampshire and Vermont, there have been significant staff changes at the highest administrative levels of the system. In the past year, the superintendent and several principals have left their positions. These changes have influenced the ability of CO-SEED to significantly influence the work happening in the schools.

The structural groundwork has been laid for a strong and relevant presence for CO-SEED in Rivendell in future years. The philosophy of CO-SEED and the focus of the new school district overlap so closely -- community inclusion, environmental education, student-directed learning -- the pursuit of common goals has been quite

natural. A significant new project among the four towns of the district is on the horizon, intended to create a shared vision, facilitate regional unity, and it may ultimately be the vehicle to facilitate meaningful place-based work at this site. Lastly, there has been much work done to put into place structures that allow for communication among the schools, between faculty and administration, and between schools and the community -- a critical achievement in this new district.

While these factors should contribute significantly to the future success of place-based work here, the actual curriculum work this year reflected little of the CO-SEED philosophy. However, the work that was accomplished was of high quality. Teddy Reichert, the science teacher for grades eight and nine and a member of the SEED team, teaches almost exclusively from a project base. Not only does Reichert understand the dynamic nature of project work -- "simple projects evolve into who knows what?" -- she consciously includes community components with the goal of getting students to know the people of the four towns of Fairlee, West Fairlee, Vershire and Orford. "Community is a part all of the way through." One example is her work that involved students in a project that solicited opinions from the local population. Designed with the intention of providing a sense of cohesion among the newly partnered towns composing Rivendell, this student survey was distributed to nearly 1,800 people in an effort to gather a wide range of information. Students plan to create a database of the expertise of the local citizens that can then be tapped for future community-based efforts.

In addition to the database of local expertise, the survey gauged people's hopes and needs, asking about citizens' favorite places in the local area. Students from Reichert's classes clearly understood the value of reaching into the community for this information stating, "Think about people who are older, who can't come out...we can tell what they think [from reading their responses]." and "It's really neat to have the survey to know which opinions are common between the towns."

Work of this nature begins a dialogue between the school and the community, an important step in establishing authentic place-based work. In this effort students not only learn about the community in which they live, they become more connected to it. Here, students shared what this work meant to them:

"When you teach it, you learn it better."

"We are learning how great the people around you can be."

“It's so cool to see how people are reacting to their town.”

“It's really neat to have the survey to know which opinions are common between the towns.”

“Certain elderly people who don't go to town meeting can voice [their opinion], write it down, and send their ideas in.”

“The one last question was really cool because there is more than us that want something out there.”

Teddy Reichert, Projects are an Integral Part of the Work

Teddy Reichert recognizes the value of sharing student work. One of the culminating activities for her students involves sharing the findings from their research projects with the local School Board and the Town Selectmen. In another project, the results of a survey mailed to 1,800 citizens of the four towns will be turned into a database and a reference book that will eventually be housed in the local Post Office.

However, this student-directed, project-based work was not always the norm in Reichert's classroom. Her teaching methods used to include predominantly lecture and textbook learning, but this began to change four years ago. Now those books are primarily used as a resource as the students' educational opportunities become more oriented toward the open-ended inquiry that characterizes work around real community issues. Reichert's students recognize the project-based methodology she employs and they respond enthusiastically to it. "I've developed some curriculum around student generated ideas. Because she allows space for student direction within projects, Reichert comments, "Students carry the ball [for community-based work] at the middle school. I give them a challenge and a rubric and they go out and do it...when you let them set their own bar, they reach higher than we would have pushed them."

Reichert lays the groundwork for her first semester science class by engaging students in projects that study the systems of the human body. In the not too distant past, when Reichert's students studied human systems, their study of the body was segregated from their work on the environment. Her approach is very different today. Reichert builds on students' understandings of the human body to address the connection between the human body and the environment in which it exists. "By the way Ms. Reichert teaches things, you know it forward and backward and can tie it all in. We can make

connections with information we didn't know before." Relevancy is important to her lessons, as she states, "There is a link between human bodies and environmental impact. If you don't tie it back in and bring it back home, what use is it?"

In another lesson she teaches the life of plants, from seed to fruit, in which students develop their own experiments to test the effect of acidity on plants. During a lesson on the atmosphere, her students wrote letters to the Environmental Protection Agency to ask them to study the sources of pollution that originate in the Ohio River Valley, which some claim to be one of the leading sources of New England's acid rain. Connected to their study of pollution, students researched the health of local fish. All of the findings from their research were consolidated and presented to the School Board and the Town Selectmen during the students' State of the Environment Report. Allowing room for students to pursue their own individual interest within the teacher's larger educational framework generates more enthusiasm among students. They particularly respond to the open-ended inquiry that characterizes a real problem-solving approach. One of Reichert's students noted, "Teaching is more effective when it is hands-on and when there is a problem that you're trying to solve. Something you're trying to learn more about."

One resource that Reichert has tapped with great success are former students of hers who have remained in the region. Kate Turpin, who went on from Reichert's classroom to earn a degree in engineering, has been instrumental in connecting Reichert's current students with the Dartmouth College Environmental Studies Division. Undergraduates from this program have become important environmental education resources as they have introduced Rivendell students to Dartmouth's organic farm site, taught classes on composting, and led canoe trips on waterways in the region. As Reichert noted, Dartmouth students have "totally let us into their lives". Involving students who are slightly older than your own students is particularly effective as students respond well to these older role models. Seeing college students enthusiastically working on and educating about environmental issues can be quite effective in conveying that the lesson is meaningful and the work is 'cool'. As one of Reichert's students puts it, "Students learn well from other students. Someone learning along with you is motivational and it makes it more interesting."

This issue of relevancy is always important to the design of Reichert's lessons. In a real-world application of the type of work she likes to promote, students from her middle school recently became involved in a traffic study that was to determine the usage of several area streets around the school. Through their participation in this project the students were able to save the expense of employing an outside contractor to gather the information on a traffic count. Knowing that their efforts were valuable to the community, relevant to a real world application, and respected enough by the town to be considered valid, the students felt connected to meaningful work, recognized for their contributions. This style of teaching, and these types of results, are important foundations on which many efforts may be built.

Rivendell Committees

An enduring outcome of the Four Threads Community Profile, that occurred during the 1999/2000 academic year, has been that many of the committees that were generated from that event are still quite active, providing forums for discussion and points of access to school and community issues.

The infrastructure of the Rivendell Interstate School District is designed to be inclusive of these Profile committees. Student membership is actively sought and realized on committees such as the Community Resource Council (the CRC, which functions as the SEED team at this site) and the T3 -- the Transitions Through Traditions Team (developed as the school partner to the CRC). Students who serve on T3 speak of feeling respected and having their opinions valued.

While there are a number of community members who work on the CRC, there is not significant teacher representation. More teacher representation is found on the T3 committee, membership for which teachers receive a stipend. Because committees have been an important way of relaying the mission of Rivendell and the philosophy of CO-SEED, committee representation is important. Educating teachers to understand how to implement effective community-based work is critical to getting the work incorporated into the curriculum. In other sites, much of that philosophical understanding is facilitated through the work teachers do alongside community members on the SEED team. The fact that the structure of the T3 committee consists primarily of teachers and students, while the environmental learning partner, administrators and community members meet on

CRC may inhibit the lines of communication between the various partners. There is a strong intention for these two committees to work cooperatively in the work of Rivendell – meetings are scheduled in a manner that allows them to inform each other, as well as some cross-representation between committees. While teachers may feel more comfortable bringing an idea to T3, or a community representative bringing an idea to CRC, both avenues are an effective means to get momentum behind a new initiative. Rivendell superintendent Noelle Vitt is working to empower the T3 team by giving them financial autonomy over certain funds. With that responsibility, T3 will likely function much as the SEED team does in other sites, enabling the community-based work there. In addition, it will be important that Hulbert representatives Paul Sawyer and Heather Trillium work closely with both the T3 and CRC committees in order to build relationships and determine how they can best support the work in their site.²⁴

Communication and Responsiveness

Effective communication is the key to success for an endeavor such as CO-SEED. A structure that contains too many committees, or one where the reporting lines remain 'fuzzy' may serve as a barrier to effective communication. An example of this occurred at the last CRC meeting of the year. Members of the committee were unclear about what resources they should expect and unsure about how to access funds and other resources. There was concern that some individuals' names were not included on distribution lists for information. Others were confused about operational issues. These barriers to effective communication are warning signs that the larger community may not be receiving information, or having input, as effectively as is possible.

Participants from the Rivendell site may need more guidance to learn how to access the resources of the Hulbert Outdoor Center partner, as well as gain a more thorough understanding of the work of CO-SEED. While this may be the case, the relationship with Hulbert proved crucial this past autumn when elementary students needed to be housed there as they waited for the completion of the construction of their school. This accommodation would likely not have happened had it not been for the

²⁴ It is important that these environmental learning center partners become familiar with and effective working within the district educational frameworks. Establishing a system of communication that keeps the Rivendell School District administration informed as well is crucial.

groundwork laid by the CO-SEED facilitated partnership with Hulbert. Student experiences during their time at the Hulbert Aloha Hive were more naturally oriented outside of the classroom. The students' journals from these experiences speak positively of the changed teaching and learning dynamic.

Building in Assessment

While one of the key roles of the site facilitator has been to make suggestions on how to include an important community component, SEED team members at some sites have also performed this function. This team approach is good in that you have a number of people collaborating to consider program possibilities and raising the awareness of potential contributions from the students and community members. A drawback to this approach is if the SEED team meets less than the average once per month, it may cause delays in undertaking the project work. Another responsibility of the SEED teams in most sites is control of the CO-SEED directed financial resources used for projects. This stewardship responsibility makes them important gatekeepers in terms of gaining access to funding. This stewardship has taken many forms, from SEED teams instituting a proposal process that teachers must complete to request funds, to recommending the extension of the project by including a public presentation of student work, and requiring the work to address an important community issue.

With this process for granting funding has come increased accountability. The SEED team at Littleton has recently requested from teachers a follow-up report on the work supported by these funds. While this report might currently be in the form of a teacher reflection, this accounting could ultimately become a powerful assessment if teacher and student reflections become a component of the post-activity work. At most sites, SEED teams are beginning to build in pieces of assessment and reflection that help to make the experience more meaningful -- an indication that they consider accountability an important part of these experiential learning experiences. As Noelle Vitt, Superintendent at Rivendell commented, "It isn't good enough to have just an activity. We have to be able to answer *why* we do this and what will students carry with them as a result. A trip to the pond is meaningless if there are no enduring things for students." Superintendent Vitt's observation affirms a prevalent belief among teachers and administrators that this type of learning involve not solely a fun venture into the local

woods, but should engage students with an authentic purpose that contributes to students' knowledge, skills and dispositions in a significant way.

The question of how the learning involved in these projects addresses the state frameworks or standards is an important issue at each site. A teacher familiar with their state standards and frameworks can use a project as an opportunity for students to gain an understanding of these guidelines for learning, as well as assisting them to make connections between what they are learning and the larger pedagogical structure. All of this takes time. Many teachers start with project-based learning that then becomes place-based learning when the community component is added.

Most educators agree that getting students out of the classroom engages them in a manner different from more sedentary learning. However, demonstrating that there is rigor in this engagement is the evidence that real learning is happening through these projects. Evidence, perhaps demonstrated much as Teddy Reichert's students did when they recently presented their science projects to the Rivendell School Board and Town Selectmen. Having the students present their findings in a public forum can be a powerful way of contributing to local knowledge and understanding. Additionally, this experience helps students become comfortable with public speaking, learn to build a logical organization for their findings, and identify the evidence for their conclusions.

At the same time that these students are communicating their understanding, they are reinforcing that they and their work are important to the community, and that they are engaged in a serious endeavor that is relevant to the people who live in that place. The place-based focus of their work ensures it will not be done in isolation, with little local relevancy and value. Rather the students are contributing citizens with much to offer. The young people have become aware of this changed dynamic. One young person, Ethan from Littleton notes, "We are trying to get more students and adults to see more of each other and get to know each other. We want to get the community more student friendly and we want students to be more helpful to adults and community members." As Teddy Reichert (of the Rivendell school district) observes, when the students recognize that they are respected by the adults around them they show greater initiative and responsibility: "When you allow [the students] to set their own bar, they reach higher than we would have pushed them to. [They] have taken this work to heart."

Cross Rivendell Trail Project

The Cross Rivendell Trail project has the potential to be a unifying collaborative effort for the four towns that compose this school district. The Trail capitalizes upon a natural feature of the landscape that helps define this bioregion. Utilizing the skills and efforts of the Rivendell students and community members to design, develop, maintain and access this trail system will likely build strong working relationships. Because students were involved in hosting an initial information and planning meeting in which they solicited information and discussed with townspeople ideas such as trail content, layout, and access to right-of-ways, their sense of investment in and ownership of the outcome of this effort will be greater. Keeping students central in a leadership role might be one strategy of helping this project move more swiftly through the region's bureaucracy.

The students who have been involved in the Cross Rivendell Trail planning meetings have been articulate about the process whereby the trails will be established. One sophomore, Dylan Faherty, worked with Jayson Seaman,²⁵ along with other members of T3, to host the dinner that brought together people who could be instrumental in making the Cross Rivendell Trail a reality. "Everyone knew [already existing] trails or local landmarks to make. The people around here are incredibly knowledgeable about their environment." In reference to his experiences on the T3 committee, "This is my first time on a committee with adults. They listen and respect students' ideas. Everywhere else adults run everything."²⁶

Initiative and creativity are two necessary attributes required to make an endeavor such as CO-SEED succeed. High School senior, Chad Tatham, exemplified these attributes with his contribution to the Four Towns Cross Trail project of a three-dimensional model topographical map of the region that the Trail will ultimately cross. This impressively accurate model is designed to ultimately include Mylar overlays that depict various historical sites of the region. Tatham saw the need for a resource of this type when he heard people discussing the layout of the trail. For his senior project at the high school, he designed the model for use by the committee so the planning and the

²⁵ Jayson Seaman is a Hulbert Outdoor Center and ELC school support person at Rivendell, whose salary is covered partly through the district.

²⁶ Seaman has worked with students on this endeavor and seems particularly effective at facilitating the

progress on the trails could be followed. The SEED team supplied funds for materials. The results of this investment of SEED resources and Tatham's creativity resulted in a product that teachers and students alike refer to as "stunning". The model will have a place of honor for display in the central hallway of the middle school building.

Project-based work can reinforce the creativity and motivation of students even in the earliest grades. Another project generated by the Cross Rivendell Trail came from Heather, a third grade student, who wanted to develop a map plotting how muddy the hiking trails were around the region. Other students became involved and soon developed, on a computer, a map of the trails they hike, noting where the trail was muddy. The final product was of use to the region's Trails Committee. This exercise, generated by a single young student, has gotten third grade teachers, other than her own, interested in participating in this, and other, environmental education activities.

"If the district realizes the goal of truly being integrated with the community, the presence of CO-SEED is important. They are the conscience and the light that leads the way."

- Principal Mary Ann Cadwallader, Westshire Elementary School

During the opening of Westshire Elementary School, a local photographer began a relationship where, as principal Mary Ann Cadwallader notes, "one thing spun into another." Principal Cadwallader invited Roger Bailey to share his skills and equipment to project a multimedia program onto the walls of the gymnasium to commemorate the opening of the Westshire Elementary School. Through that experience Bailey has become aware of how his skills and experience can enhance the learning of the students. He has invited students to work with him to make a photographic record of old school buildings in the region, a project on which he has focused some of his own work. Oral history interviews from two local families were highlighted on the walls. The work was so compelling and interesting to the greater community that the West Fairlee Historical Society has requested copies of the documents to keep and feature in their collection.

Of Note in Rivendell

voice of students on this project and on committees such as T3.

Superintendent, Noelle Vitt, addressed the way in which CO-SEED is helping actualize the mission of the school district:

"The seeds CO-SEED planted three years ago are beginning to flower. It isn't that it's permeating the entire school system -- Rivendell didn't design their mission with CO-SEED specifically in mind. There was a shared vision that made the partnership viable...[Now we don't talk about *who* is doing the work], but ask, 'What are we doing?' Both the Trails project and the environmental work across the curriculum fit the broader goals of community. It seems to be all part of one fabric now. This is especially important because if this is the case, the work should continue regardless of who is here. People see it as something that happens in Rivendell. It defines Rivendell..."

Delia Clark's facilitation and meeting moderator skills are highly valued.

Superintendent Vitt spoke of the how helpful it was to have Clark facilitate the Community Resources Council meetings during their initial phase, as it was understood that Clark was not supporting either a school or community agenda. Through Clark's work and support, her facilitation of the Arts Forum ensures the work is supported on its own merits and prevented from being identified with one person.

The Hulbert Outdoor Center has a focus on personal growth and team building. The work with Rivendell is broadening Hulbert's environmental focus. Staff from Hulbert speak of working with students in an ongoing basis throughout the year, as well as building stronger relationships with faculty and administrators. This could serve as a solid foundation from which to build future CO-SEED work.²⁷ As Superintendent Vitt notes "At the root is how to improve relationships to develop culture and climate that will promote learning by all, not just student learning."

Recommendations for Rivendell

- Environmental learning center partners must be familiar with the district frameworks within which teachers design their curriculum. Turnover among CO-SEED staff makes this more difficult to achieve.

²⁷ Indeed, environmental work was a part of the experience of the students of Samuel Morrey school. Their first six weeks of school were held at the Aloha Hive Camp -- a facility of the Hulbert Outdoor Center -- where classes were held in cabins using fireplaces for heat. Jayson Seaman, Steve Glazer and others taught about the history of the area, the natural environment of the region, and the transition of the ecosystem from summer into fall.

- Ensuring the work supported by CO-SEED is rigorous is important to the community. Helping teachers think in terms of learning goals for their community-based work is critical. One administrator notes "Field trips need to address goals and assessment. This language helps the public understand it. They want to see an academic purpose to community work." Either the district or CO-SEED should provide an on-site professional development opportunity to help teachers gain skills in incorporating assessment measures into the design of project-based curriculum.
- Share examples of exemplary student work done at other CO-SEED sites with teachers, as well at the CRC and T3 committees. Sharing student work along with a relevant assessment tool would be particularly helpful. Encourage teachers to share the work of other students with their own current students to inspire new levels of accomplishment.
- Work to ensure a direct line of communication between representatives from CO-SEED and the superintendent's office.
- While a great deal of structural capacity building has been accomplished this year, mostly through the work of Jayson Seaman, there should be an emphasis placed on helping teachers accomplish more in the way of CO-SEED supported curriculum development.
- While there is alignment of the CO-SEED philosophy with the mission of Rivendell, finding strategies to more fully integrate the work of CO-SEED into the fabric of the Rivendell work is necessary.
- As a great deal of work related to the CO-SEED philosophy requires students to complete work off of the school's campus, systems for addressing logistical issues such as student transportation, parental support, emergency procedures, communication and related issues should be agreed upon and standardized.
- CO-SEED staff should maintain a high level of visibility to provide encouragement and support to the work of students and teachers, particularly during high visibility events such as the students' State of the Environment Report, presented to the School Board and Selectmen.

- To ensure the work of CO-SEED is integrated as fully and effectively as possible, communication should be improved between CO-SEED staff at Antioch and the site, as well as between CO-SEED's Antioch staff and site staff.
- Explore including more community representation on committees such as T3. Only by expanding the base of individuals who contribute to the overall strategy of the school system will one teacher's goal be met for "figuring out a way to make people love their school."
- There needs to be increased exposure of the relevant CO-SEED work among faculty, students and community members.
- CO-SEED should be responsive to the needs of the community as a strategy of building credibility within the system. For example, there is the desire for more of an after-school component at Rivendell. Responding to this need might prove a highly visible and community-oriented endeavor for CO-SEED.²⁸
- Increased attention should be placed on more fully integrating the relationship with the Hulbert Outdoor Center, including making the work between Hulbert staff and Rivendell teachers and students more meaningful. Consideration should be given to making the relationship a reciprocal one -- one in which Hulbert is enriched as well. Andy Williams, the Director of the Hulbert Outdoor Center, speaks to the fact that some of this is already happening: "Hulbert works mostly with personal growth and team building. The work with Rivendell is broadening Hulbert's work. It strengthens the environmental component."
- Communicate with Rivendell administrators and teachers how to access and utilize the human resources of CO-SEED.
- Ensure that teachers are clear on the specific roles of, and relationship between, CSO and CO-SEED in their work, as well as how to access community resources.
- Enable teachers to become more versed in the mission and overarching goals of CO-SEED, so they understand that CO-SEED's work can be complementary to other curriculum strategies and goals they may be implementing.

²⁸ It should be noted here that some sports events have resulted because of work of the CSO, a committee that was originally established at the community profile.

**LITTLETON PUBLIC SCHOOLS
LITTLETON, NEW HAMPSHIRE**

"There has always been some connection to community, but not as much as since CO-SEED [started here]. Learning should be connected to real life. It feels so rich when it's connected. That's the biggest thing for kids, they need to see it has a connection."

- Assistant Principal Sally Fields, Lakeway Elementary School, Littleton, NH

Key points for Littleton

- A single individual jointly oversees the town and school budgets, encouraging collaborations and the multiple use and functionality of resources.
- There have been significant contributions to school programs by a town employee from the town's recycling and waste management programs. He has designed a recycling program in the elementary school and organized an environmental fair in the high school.
- Students from the middle school have become involved in the capping and closing process of the local landfill.
- Students from the high school have become involved in an e-commerce business project in which they contribute marketing and web site development work.
- There have been several successful regional history and science presentations by middle school students for town citizens.
- A plan has been developed to incorporate environmental education into the River Walk project, with a proposal to eventually include a nature science center.
- The middle and high school student representatives on the SEED team report that they are comfortable with their role and contributions on the team. They feel the other members of the team value their opinions.

"Littleton is unique because we have already had a lot of these discussion. A lot of the framework is already built. We need to tie frames together for the goal. I see the SEED team defining what the two can do... We want to help each other."

- Bill Church, Science Teacher, Littleton High School, Littleton, NH

Littleton, one of CO-SEED's two newest sites, is in a strong position to think differently and act collaboratively in regards to the relationship between the school and community. The town of Littleton has a new administrative structure in which one person, Jason Hoch, serves as community-school liaison. As Hoch participates in the development of the budgets for two entities that traditionally compete for resources, he is in a position to utilize physical and human resources more efficiently and effectively. Additionally, as the CO-SEED work enlarges the way community members think about the town's young people and their potential contribution to this community, the resulting projects may well have a real ecological, environmental and economic impact.

Littleton has recently completed 16 months of a communal visioning process, *Envisioning Littleton's Future*, facilitated by Concordia Incorporated.²⁹ As a result of this process the community has committed to a number of initiatives, including a joint town/school venture to develop a River Walk on the Ammonoosuc River. During the visioning process school administrators heard some very positive views concerning the contributions and capabilities of the town's young people. As school representative Forrest Goodwin observed "We had thought community members wanted us to keep our kids here [at school]. They called kids treasures. I was flabbergasted that the community thought we should utilize the community more to teach real life skills."

Building on the planning for the River Walk, the desire is to eventually have a natural science / environmental center as an integral part of the walk. Students would be responsible for trail interpretation along the Walk, as well as exhibit planning and development within the center. The town and school are discussing and moving forward in a collaborative way that includes students as crucial contributors to these major projects.

The Work in Littleton

In one proposed scenario, students may undertake a traffic pattern study to provide the town with vital information in terms of decision-making around town growth and usage issues. In Rivendell, this service not only saved the town several thousand dollars by not having to contract out the work but it also provided an important applied

²⁹ Concordia Incorporated is a community planning firm based in New Orleans, Louisiana.

mathematics lesson and civic opportunity for the students. Engaging students in work around traffic and pedestrian safety, traffic flow and road usage is particularly relevant for a population who is starting to become drivers themselves. Capitalizing upon their desire to operate a motor vehicle by getting them to think broadly about the multiple uses of roads, as well as safety precautions and related issues is particularly salient for learners in this age group. Including them as contributors in an important aspect of town decision-making sends the message that their work and opinion around these issues is helpful and welcomed. Valuing the work in this way, as we have seen in other sites, encourages a higher level of quality.

Much like the Gorham town forester Haven Neal, Tony Ilacqua in Littleton serves as an important link between schools and the town. In his role as manager of recycling and town waste, he has helped start recycling programs at one of the local schools and organized an Environmental Fair last year that featured, among other staffed exhibits, the well crafted work of students demonstrating alternative energy uses. Speaking to the unique role of students as teachers, Bill Church, the Littleton high school science teacher who worked with students on alternative energy, commented,

"My students presented their work to middle and elementary school kids. They not only made working models but in 20 to 30 minutes taught kids about their topic. They jumped right in. Some students did not know that they had it in them. They said (as they taught the groups) they learned it was good to be flexible. The more you do it, the more you find you do it differently each time. Reacting to what the students needed was important. It was important to make the lesson as interactive as possible. Throughout the day, my students saw the other groups present their work. They were in the spotlight for five or six hours as they continually taught people who came to their booths. [Several weeks after the Fair] we took these same high school students to Lakeway Elementary to present for fifth grade kids. This gave them another chance to react to students and they refined their presentations a bit more. I was amazed at how confident they were just jumping in."³⁰

Another venture illustrating the collaborations between the business, community and student constituencies is already underway in Littleton. The owners of Chutter General Store, Carol and Mike Hamilton, have developed a proposal with Lynn Davis, the marketing teacher at Littleton's Hugh Gallen Vocational Technical School, that

³⁰ Working in this way allows students to practice important communication skills. The student's comments indicate a reflective process that enabled them to refine their approach each time they presented. They

enables Davis' students to get first-hand experience in marketing an e-commerce enterprise. This enterprise requires students to use a variety of technical media to work in the global economy and make decisions that have financial impact on consumer sales. This collaboration between the students and Chutter General Store turned out to be timely as the school business in which the students previously worked had been discontinued due to school scheduling changes. In the current configuration, the students work under the mentorship of the Hamiltons, while the students in Davis' Marketing I - IV classes experience the hands-on aspects of a business enterprise, including processing and shipping orders, performing customer service, creation of web pages, maintenance of the web site, management techniques, and creation of accounting and financial reports. Attesting to the impact and popularity of this applied learning, Forrest Goodwin, the Director of the Hugh Gallen Vocational Technical School said, "They're solving problems everyday. Kids stay after school and some work on Saturday because an order needs to go out. I can't remember the last time any student willingly wanted to put in more time doing schoolwork. The class and this work are hugely popular. We already have more students than we can accommodate signed up for next year."

Jerri Potter, a Littleton eighth grade science teacher who actively utilizes the local region as a learning laboratory, regularly has students collect data and do chemical tests at the Ammonoosuc River, a local pond, town owned conservation land and a nearby wetland. In another exercise, Potter has students visit the local cemetery, research the people buried there, and then create maps of historical buildings in the area that bear a relation to those individuals. Student presentations for community members -- a forum that the CO-SEED philosophy strongly encourages to bring community and school together, to broaden awareness of and investment in the work and encourages students to engage in analyzing and synthesizing information, answering questions that test the thoroughness of their comprehension of the topic -- is an annual event for Potter and her students. Each spring, students from Potter's class present their historical and scientific work at a forum held at the newly renovated Opera House.³¹ As Potter, noted, "[The quality of the work was such] that people did not believe they were just eighth graders. It

especially noted how important it was to gauge the audience and tailor the presentation to their needs.

³¹ The building trades class is working with contractors in town to refurbish the Opera House. As part of that work students recently relocated the former high school gym flooring to the Opera House.

was almost professional level work." At this year's forum several of her students presented information to the public about pollutants they suspect leach from the landfill and how capping the landfill may help contain those contaminants.³²

Potter requires that the students' presentations at the Forum be interactive, not, as Potter notes "just posters on the wall." Past presentations have included an historical tea, a fly fishing demonstration, and a look at historical music through the ages. The community members who attend include a wide range of people, more than simply the students' parents. Ten members of the local fire department who had worked with a group of young people to explain the use of their equipment attended the presentation to see how 'their' students did. The event is becoming widely known and very popular, as evidenced by the nearly 200 attendees in last year's event. As Potter accurately notes, "We are really forging individual relationships between individual students and the community, not just community-school bonds."

Structure and Participants

The school district holds regular meetings in which administrators from the elementary through the high school come together to discuss work at their sites. This sharing allows people to make connections between their schools and results in enhanced access to the resources of the different schools, for example, using older students to mentor younger students. Employing these regularly scheduled meetings to help people share ideas about CO-SEED work is something done quite intentionally by Sally Fields, the assistant principal at Lakeway Elementary School. At the beginning of each faculty meeting, she has a faculty member speak about their most recent CO-SEED project. Hearing about the work of colleagues in this way helps people build on each other's ideas and encourages \ the likelihood that community connections will be made. Fields comments that the teachers who are using a more project-based approach have become excited about their work, one result of which is the completion of curriculum planning far in advance. This autumn, the second grade teachers and guidance counselor will work on trail maintenance and clean up, as well as create a teaching center in the woods behind

³² These students had previously spent time at the landfill conducting water tests and working with an engineer and his technical staff to understand the complexities of such testing. The quality of their work

the school. In another example, a third grade teacher who teaches a unit on Native Americans plans to create a community garden as part of their study.

Tony Ilacqua provides an important role on the Littleton SEED team by helping link community resources with teacher's curricular ideas. The SEED Team is responsible for allocating funds to teachers who have an appropriate community-based unit and have requested supporting materials. The members of the team have decided that they will work toward being able to take any proposal and ask 'How can we support this? What would it need to have in place to fulfill the community-based requirement?' The SEED team may brainstorm possibilities and then offer those options back to teachers. This situates the SEED team in a more collaborative educational role -- one in which teachers feel supported and encouraged with their work. As Assistant Principal Fields notes, "It is important to be reflective on the process. The SEED team meetings allow us to reflect on where we are going -- to ask 'what are we accomplishing?' They keep us focused."

In a process-related issue, the members of the SEED team are considering the inclusion of questions on the proposal form that encourage teachers to reflect on the work at the project's completion. Building in this aspect of self-assessment helps ensure that the work is continually improved. Additionally, the inclusion of reflective writing pieces from students helps us know more about what they understand and how they think about the work. Teachers who use student reflections in an ongoing way remark on how much they have learned from them and how it impacts their teaching. In the words of the Great Brook School's Kathleen Bigford. "This changed the way I taught...I heard so much from the kids at night...I never would have known what worked if I hadn't read them..."

Tim Breen, the Appalachian Mountain Club (AMC) environmental learning center partner who works with teachers at this site, provides the support that, in his words, allows "projects to come to fruition." He makes phone calls, does research, gets maps laminated, connects community members with teachers, and dozens of other tasks. Breen's opinion on the importance of the CO-SEED work reveals a foundational strength of the entire effort, "'Antioch isn't a program, but a support mechanism.'" As Forrest Goodwin notes, "We now have a better handle on what we're looking to do. Tim Breen's position is key because he is designated to work all of the time developing projects for

and exhibit so impressed the participants that the students have since been invited to present to a Board of

just our group. If [the person in Tim's position] came from Antioch, it wouldn't be local enough. The position itself is a key one."

Another of Breen's responsibilities includes helping teachers think in new ways about their curriculum. While keeping a developmental perspective in mind, he works to integrate a community component. As an example of the important impact Breen can have in this role, one teacher notes, "Tim is helping me rearrange my curriculum, *Your Place in Space*. I am going to start local and [then] move out into the solar system."

In a recent effort by two collaborating fifth grade teachers, students incorporated sound mapping, an activity introduced in an earlier CO-SEED training by David Sobel, into their exploration of the local Moore dam. Before the fifth grade classes went to Moore dam, Breen worked in the library researching old documents and gathering articles about the dam's construction. Through his work, Breen was able to convey to the students how the rising waters covered the community of Pattenville (West Littleton) as the dam filled.

The teachers, reflecting on the success of this effort, speak of how they will build on this work when they visit the dam in the year ahead with a new group of students. In that effort they hope to incorporate nature journaling.³³ Reflecting, as well, on the current year the teachers noted that by allowing students to work on this effort in both of their classes (different subject areas), the students were able to produce more sophisticated products.

As the residents, students, and teachers in Littleton become more comfortable with this type of learning, they have tended to change from their traditional roles. Students take on responsibility for conducting research, teachers becomes the facilitator of the students' research process and community members become educators as they share their own expertise.

In this example, the CO-SEED resource person was the one spending time in the town library collecting information and sorting through original historical material. However, this valuable learning experience can provide students with the excitement of discovery as they themselves review these primary source materials. Learning to do

Selectmen in a neighboring town.

³³ This year a group of students who did creative writing around their excursion to the dam named themselves 'The Natural Power House Poets'.

original research to uncover the information needed for a project provides students with a set of skills that will serve them throughout their lives. Widening the network of people involved in this sort of investigative inquiry will enhance the building of relationships and make the work more inclusive.

Ethan's Head Start: A Student Profile at Littleton

"Intimidating? Sort of. I'm getting used to it though. I think it (the work) is real because we're getting involved with adults. It's giving me a head start in life with public speaking and stuff. I guess having a teenager's point of view would mean a lot to the community because there are so many teenagers in the community. I haven't had original ideas, but have helped with other people's ideas. I provided a student point of view on how this would work. We are trying to get more students and adults to see more of each other and get to know each other.

We need to get the community more student friendly and get students to be more helpful to adults and community members. I hope to be involved on a lot of these committees. Even though I might not be around [when the school gets built] just thinking [that] I was involved gives me a certain satisfaction."

Recommendations for Littleton

- Pulling in more community members like Carol and Mike Hamilton, Tony Ilacqua and the people who work in the town library, Historical Society, and museum will broaden the base of ownership of this collaborative work. At the same time, it invites more people into the educational process of students.
- Providing training to teachers during professional development days would help familiarize them with the CO-SEED philosophy and give them something from which to build.
- Getting students on the planning committees for the River Walk is crucial during this early planning phase.
- Supply teachers with books and resources that give them guidance in beginning project and place-based work.

- CO-SEED staff should attend the Environmental Fair, Potter's annual presentation and other events in which students and their work play a vital role.

**GILFORD PUBLIC SCHOOLS
GILFORD, NEW HAMPSHIRE**

Key points for Gilford

- Teachers requested examples of projects they could integrate into their existing curriculum.
- Teachers would like to see examples of student work from other sites that captured particular efforts of young people doing CO-SEED related work.
- Teachers are very interested in learning by doing. Providing more opportunities such as the "Trail as Classroom" offered at the Summer Institute would be helpful.
- A community member was a part of the Gilford team who attended the Summer Institute in Pinkham Notch. This is a good start for building a strong team.

While I have yet to visit Gilford, my conversations with secondary school teachers from the site who attended the CO-SEED Summer Institute indicated that they are eager to do work in the style of the community-based work promoted by CO-SEED. They do need, however, concrete examples of the resulting student products of this type of work as well as some guidance around the sequential steps involved in creating those products. These teachers discussed how each of them in their separate disciplines could work collaboratively to build an integrated experience for students. Bringing a community member to the meeting and engaging him in these discussions is a step toward a larger conversation that broadens the potential at this site.

GENERAL CO-SEED RECOMMENDATIONS

- ⇒ It would be helpful for the environmental learning center (ELC) partners to establish regular meetings for sharing information and strategies, as well as discussing common issues, to increase the understandings and collaborations between and among sites. This could be accomplished by facilitating consultancy triads to engage partners in substantial philosophical discussions around the work at their sites. In addition to creating a productive learning environment, this cooperative problem solving can model the collaboration that is a goal at each site.
- ⇒ Review the strategy of using the listserve / email list (generated at the ELC meeting held earlier in the year) as a means of communication. It seems to have been lightly used.
- ⇒ Timely and accurate communication between the ELC partners and Antioch is critical for the success of the project. Some parties have spoken to this being a crucial need.
- ⇒ ELC partners must always be aware of, and sensitive to, sensitive local issues, such as in Rivendell where it is important that the ELC work within the framework of the new district.
- ⇒ It would be helpful -- and support the community-based work -- if CO-SEED could provide more resource books and materials for teachers, such as the mapping book used at David Sobel's workshop.
- ⇒ Sites such as Rivendell are confused about how to access resources. They want to know the specific responsibilities of the different committees, how to access available fiscal resources, and how Hulbert will be involved in an ongoing way.

- ⇒ Antioch CO-SEED staff and administrators need to be visible for major project and public / school presentations of work and achievements. Attending events such as the State of the Environment Report at Rivendell, at which students engage in public presentations, validates the work CO-SEED supports at sites. It communicates to teachers and students that their work is worthwhile and important. It provides an important documentation opportunity as well.

- ⇒ There is a critical need for an ongoing strategy to keep SEED teams moving forward, as enthusiasm and membership begins to wane. Meetings for these teams need to be engaging, as in Antrim, where meetings serve as forums for student exhibitions and target particular community sectors for brainstorming. In Antrim, regular attendance by students and community members at SEED meetings would be helpful in terms of developing ongoing conversations and understandings.

- ⇒ The Mapmaking workshops by David Sobel provide a very effective springboard for teachers to think of strategies to integrate community into their curriculum.

- ⇒ People at sites regularly comment on Delia Clark's significant skills as a facilitator. They note how effective she is at keeping meetings focused and moving forward in a productive manner.

- ⇒ Representatives from a variety of sites have noted Bo Hoppin's ability to effectively facilitate the building of relationships in a sensitive manner.

FINAL THOUGHTS ON SEED TEAM MEETINGS

The SEED team meetings help teachers refine their project ideas and integrate a broader community component. Teachers, community members and the ELC partners can all enhance the original idea. The collective brainstorming may serve to broaden the lesson far beyond the original proposal. If a teacher has approached the SEED team for funding to support a project, this can serve as an opportunity for that team to modify the original idea into a more interdisciplinary unit with a strong community connection. Through this application process, the teacher comes to recognize the varied support the SEED team can provide. As such, it is most helpful to expose numerous teachers to the brainstorming process that characterizes the SEED team meetings.

Working out the logistics that are required to broaden the exposure at each site requires thought and planning. Should teachers present their ideas to the SEED team in person or through a written process? Direct interaction with the proposing teacher would allow for conversation around the proposal, would help them recognize a broader base of investment in their project, and would make possible a deeper understanding of the purpose and possibilities of CO-SEED work.

Determining a structure that would allow this process to be more inclusive for teachers, students and community members would be useful. This might involve SEED team meetings occurring more frequently and at different times so that they can occasionally be integrated with the faculty meetings at sites' schools.

Having administrators from all of the site's schools on the SEED team invites an administrative perspective, builds a base of support for teachers in the various schools and can be helpful in terms of communication between schools.

A sign of growth and community understanding of this work will be evident when a community member or a student initiates a CO-SEED proposal.³⁴ SEED teams should work toward that goal. As this work deepens within the community, the project-based opportunities are boundless.

³⁴ In Rivendell, a student suggested a proposal to the SEED team and his idea was supported. The resulting product -- a topographical map -- will contribute much to the important work of the Cross Rivendell Trail.

Appendix A

INDICATORS OF A CHANGED DYNAMIC

When work is truly becoming more collaborative in sites, the indicators below may forecast that changed dynamic.

- More teachers are familiar with CO-SEED type work.
- More teachers are engaging in project-based work and including a community and/or environmental focus.
- More teachers are working collaboratively to design projects that are interdisciplinary in nature.
- More teachers are working with community members to utilize their expertise in specific areas.
- Students are noticing that their work has a 'real life' quality.
- Students are more engaged in their learning, able to speak about their activities and their purposes.
- Students are involved in determining the direction of their learning -- space is made to allow students to follow their interests/ newly discovered community needs as the work evolves.
- Students are involved in more open-ended research, sometimes involving primary source documents.
- Students are interacting more with a variety of adults in the community.
- Students have an increasing awareness of community, their part within their various communities, and the importance of their contributions to community.
- Students become masters of their work and are able to speak of it and teach aspects of it to others.
- Students gain public recognition for their work and contributions.
- There is more awareness among community members of work that is being done at the school.

- Students are looked to by community members as contributing members, capable of providing valuable intellectual resources.
- Student work is more open-ended.
- Student work allows for more creativity.
- Students work is used by various agencies, such as the National Park Service.
- As a result of feeling more empowered, students take an increasing interest in local and national issues that they have investigated.
- Teachers see their project-based units as never really being finalized, as always being open to evolve out of the newly developed interests of each year's students, responsive to real community needs.
- Students contributions are taken seriously and students are invited to serve on committees with adults.
- The definition of teacher is more broadly defined to include students and community members.
- More community agencies approach teachers with ideas as to ways students could be involved with the local Historical Society, the local library, or the Mayor's office.
- More inter-grade learning occurs as older students become mentors/teachers of younger ones.
- The work that students engage in is focused on real issues.
- A feeling of stewardship is more prevalent among teachers, students and community members.
- Problems are approached in a more collaborative fashion.
- Local buildings and resources are viewed as communal, serving multiple functions. For example, the local elementary school is open to teach English as a Second Language to adults at night, computers and the school library are accessible to students and other community members after school hours.
- The work of students is taken seriously -- indicating that more than just the teacher will see the finished product.

Appendix B

BRAINSTORM FOR BEST PRACTICES

Building community within the CO-SEED environmental learning center (ELC) staff was part of the agenda for this meeting, hosted by Antioch Site Coordinators on August 31, 2000. The Brainstorm for Best Practices provided those new and veteran coordinators with idea possibilities. This information was compiled and distributed by Bo Hoppin.

Evaluation and Assessment

1. Written evaluations by students of projects
2. 'In Process' feedback from teachers
3. Daily log by students
4. Students informing real community decisions, systemic qualitative reinforcement
5. Evaluate lessons taught in class, by student demonstration of content in the field/outdoors
6. Students identify criteria for skill mastery
7. Using reflection as a tool for evaluation

Community Engagement

1. Community Support Organization (CSO) as opposed to PTO or PTA
2. Build relationships with local Historical Societies
3. Doing the community profile and following up on the work that comes out of the profile
4. Forming partnerships with the local parks department or whoever runs the land assets part of your town
5. Having foresters and loggers working with school (or anyone from a local 'resource based' industry)
6. United States Forest Service member sitting on SEED team
7. Helping community members to understand how SEED team can be a point of access to the school
8. Holding 'Town' days, where students learn from the town about the town
9. Third grade students writing children's book about the town or local environment
10. Community members working with and within the classrooms
11. Holding 'Community Partnerships' meetings, where a specific group convenes once, such as members of the Historical Society, librarians, or artists to discuss strategies of how that group and the school could work more closely together
12. Doing a town walking tour or interviews with senior citizens
13. Daytime meetings with community members
14. Attending town committee meetings
15. Student exhibitions of school projects
16. Students as planners within the town
17. Maps that kids make displayed in library, forest society, banks or other public venue

Planning With Teachers

1. Be aggressive about joining team and staff meetings
2. Build relationships through field trips with students. Let the young people provide the energy to motivate the teacher to want to do more.
3. Environmental educator initiates activities when appropriate
4. Accommodate the teacher schedule at all times. You have to work around their tight time frames.
5. Provide in-service training based on teacher identified needs. Make the in-service hands-on and problem-solving based.
6. Work through the issues, persistence, patience and follow through pay off eventually.
7. Present at faculty meetings
8. Make yourself present in the school regularly
9. All participating in Summer Institutes
10. ELC site person needs to be aware of grade level standards and teacher needs for academic content.
11. Eat lunch in the teachers lunch area
12. Provide the support that makes it easier for teachers to do creative things such as, following through on promises, collecting gear and equipment, making phone calls, setting up guest speakers, teaching directly to students on content areas you are strong in and teacher feels less strong in, making the creative connections.
13. Know the student's ability for the grade level the teacher works in.

Ideas for Cool Curriculum and Meeting Standards

1. Doing a metric treasure hunt in the outdoors. For example, find something 2 meters tall.
2. Map and compass work related to 10th grade geometry and 5th grade introduction to angles
3. Field day journaling used back in the classroom to write short stories in English
4. Doing reference papers about what lives in a local marsh and then when done use that content to build a food web mural in the school
5. Teaching science, math and English through thematic social studies units based on local places
6. Wild edibles, Julia Child's video to meet plants and natural resources standards
7. Each one, teach one
8. Bread Oven at Antrim outdoors to teach world geography, French, yeast and science, Native Americans, etc.
9. Have young people involved with 'River Watch' peer partner with other grades
10. Use local geography as a reference point for world geography
11. Invertebrates and microscopes
12. Gardening and Plant curriculum
13. Study the relationship/effect of transportation and technology on the community
14. Find the plane crash in your neighborhood, as a teaser to study local geography
15. What does it take to make a new suit/ Feed ->Wool->Yard->Clothes
16. Doing historical quests
17. Creating a resource directory for local assets
18. Math class tabulating evaluative statistics
19. Student participating in studies related to community
20. Water quality monitoring

School Structural Change

1. The existence of the SEED team as a curriculum planning effort
2. Opportunities within school structure to free up teachers for the whole day, identify those and take advantage of them.
3. Use the internet as a communication strategy
4. Identify existing days or events, and encourage teachers to build curriculum around those days to improve their effectiveness. For example, north country day of service build a curriculum unit around the project the students do on the day of service.
5. Use parents more effectively
6. Creating good models quickly, take advantage of visibility of good projects early on
7. Work with administrators to increase dollars for field trips
8. Changing the structure of the school day schedule, longer periods, freedom from specials.
9. Extra person around makes big projects possible
10. Taking on the school lunch program
11. Traditions and Transitions (Jason Seaman)
12. Formalize ELC and school relationships
13. Use of ELC facilities as an asset to school
14. ELC staff taking on traditional school roles
15. Get involved with school leadership meetings, sometimes grant submission is an opportunity for doing this
16. Students getting the educational agenda

Appendix C

CO-SEED SUMMER INSTITUTE

As noted elsewhere in this report, designing trainings around place-based activities that allow teachers to engage with the work much as students would provides a valuable base upon which other work can be built. The following workshops and mini-course topics were offered for teachers, community members and students who attended the CO-SEED Summer Institute in Pinkham Notch, NH on June 26-29, 2001.

Workshop Topics

Writing to Meet the Standards -- Discover ways to further engage your students in writing about their community. Explore project ideas such as writing and illustrating children's books, reflective exercises, and publishing student work in your local paper.

Trails as Classroom -- Integrate trail construction and interpretive brochure writing into curriculum.

Using the Schoolyard -- Enhance curriculum and use the environment as an integrate element through schoolyard activities.

Green Buildings -- Evaluate the total consumption of a building and learn how to take steps toward creating healthy schools.

Energy Audits -- Explore energy and resource consumption within our school buildings.

Curriculum Mapping -- Align community and place-based activities with state standards.

Mini-Course Topics

Mapmaking with Children -- Mapmaking projects in the classroom, schoolyard, and community help students develop a sense of place and provide an experiential approach to teaching math skills.

Teaching history with local Resources -- Prepare your students to interview community members, form partnerships with historical societies, and create publications that serve the community.

Using Conservation Lands to Teach Forest Ecology -- Establish partnerships with Conservation Commissions, Planning Boards and Town Selectmen to explore real science that benefits the community.

Watershed Studies -- Using local wetlands and ponds, study water chemistry, macroinvertebrate populations, and water quality.

Community as Classroom -- Assess your community's needs as students map public lands and devise improvement projects. Create a better understanding of the cultural and natural history of the land through lessons on native plantings, forest succession, and Reading the Forested Landscape.

Appendix D

INDICATORS THAT PLACE-BASED WORK IS DEEPENING IN SITES

The questions that guided my research and evaluation work were designed to allow me to determine if, and to what degree, the following things were occurring in CO-SEED sites.

- There is greater interaction between schools and communities.
- There are more teachers and students involved in curriculum activities related to their local areas and their needs.
- There is a broader view of teachers and teaching.
- The work encompasses community people. Community people are seen as teachers too.
- The curriculum is becoming more powerful, giving greater focus to student understanding, using knowledge in multiple ways, engaging students in academic work that is complex, leading to genuine expertise and related performance.

(List from Vito Perrone, Director of Evaluation, Annenberg Rural Challenge, Harvard University, March, 1999)