Elizabeth Mine
Site Re-Use Plan

Strafford and Thetford, Vermont

March 31, 2004

An Educational Opportunity in the Orange County Copper Mining District

Elizabeth Mine

Site Re-Use Plan

Prepared for
The Towns of Strafford and Thetford, Vermont

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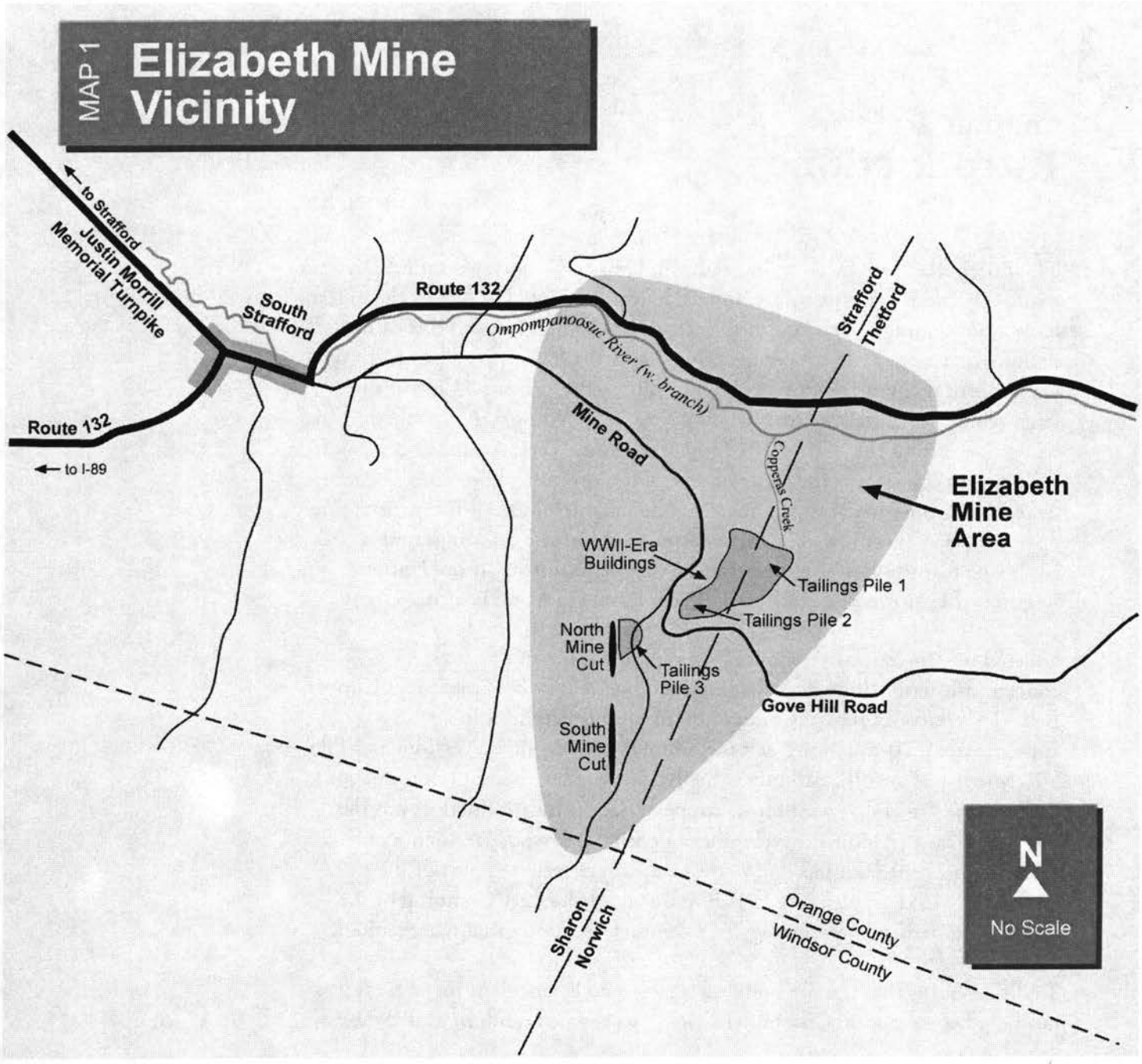
Introduction

The Elizabeth Mine (Map 1) in Strafford, Orange County, Vermont, is a nationally significant historic industrial landscape, noted as one of the oldest large-scale mining operations in the country. It is important as one of the nation's first large scale copper smelting plants that dominated production of key industrial chemicals during the mid-nineteenth century. One of the largest and most intact historic mining sites in New England, Elizabeth Mine was active during the War of 1812, the Civil War, World Wars I and II, and the Korean War. It was the scene of several important technological firsts in American copper metallurgy, including the notable nineteenth century mine operator Isaac Tyson, Jr. The mine complex of historic buildings and landscape features has been determined eligible for listing in the National Register of Historic Places as the 840-acre Elizabeth Mine Historic District.

Located in east-central Vermont, a region known for an unusual concentration of sulfide deposits, Elizabeth Mine is part of the state's Copper Belt. This part of Orange County hosted mining activities in an approximately 20-mile-long belt including the Ely Mine in Vershire and Pike Hill Mines in Corinth. Although chiefly associated with copper production, the area was first important for its copperas. Copperas production was the first significant economic development in Strafford, whose residents were mainly subsistence farmers and tradesmen. The diverse remains of the Elizabeth Mine complex offer a rich resource for the understanding of the mill site, its artifacts, mineralogy, ore deposits, technology, and archeology.

Tradition has it that the ore body was discovered by accident in 1793. It was not long before trading and mineral rights accelerated, and, in 1809, the

Vermont legislature approved the corporate charter for the Vermont Mineral Factory Company, the first of a succession of companies to work the copperas and copper ore deposits at this site. The early copperas industry represented a significant achievement in state and national history. Copperas production at the mine continued up to the late 1870s, when it was supplanted by copper production. In the 1880s, the sons of Isaac Tyson, Jr., incorporated a new company named the Elizabeth Mine Company. The domestic demand for copper rose sharply at the beginning of the twentieth century due to advances in communication and power technology. War-time



Map by John Milner Associates, Inc.

demand further spiked production. Before the mine closed in 1958, it had a total lifetime output of more than 100,000,000 pounds.

Studies by the Vermont Agency of Natural Resources and the U.S. Army Corps of Engineers during the 1970s and 1980s identified Elizabeth Mine as a source of pollution to the West Branch of the Ompompanoosuc River. The site was classified under Superfund's Non-Time-Critical Removal Authority (NTCRA) program in 2000 and designated a National Priorities List (Superfund) site in 2001 by the Environmental Protection Agency (EPA). The EPA has proposed a phased clean-up focused on the control of acid mine drainage and metals being released from the exposed tailings, waste rock, and heap leaching piles at the site. With the realization that it may be some years before NTCRA is funded, the EPA approved $3 million for emergency response work at Elizabeth Mine in July 2003. The EPA expects to release a proposal for remaining clean-up actions in 2004.

The purpose of the *Elizabeth Mine Site Re-Use Plan* is twofold: first, to dovetail with the EPA process by creating potential re-use options prior to clean-up activities; and second, to provide the community with a blueprint for interpretive, educational, and recreational strategies.

Background

Recognizing the opportunity afforded by EPA designation to re-assess the mine and its role in the community, the *Elizabeth Mine Site Re-Use Plan* has focused on potential uses and opportunities for the site. The plan's goal was to develop viable re-use options that meet public-interest goals. For most of its history, the mine played a major role in the communities of Strafford and Thetford. Although plant operations stopped in 1958, the site retains good integrity with many extant historic structures, landscape features, artifacts, and archeological resources. That said, balancing environmental clean-up needs with recreational and educational needs presents a number of challenges. For example, features associated with the tailing piles possess high historic research value, but they leach contaminants that pose environmental hazards. With the only intact cluster of hard-rock metal mining buildings in the region, and a rich landscape of roads, pits, shafts, foundations, and archeological features, Elizabeth Mine presents varied opportunities for the community. The *Elizabeth Mine Site Re-Use Plan* is structured to explore these opportunities, weigh the options, and determine a course of action for the next chapter in the history of the Elizabeth Mine. EPA funding for this project was obtained by the towns of Strafford and Thetford.

Scope of Work

This project consists of four components. The first gathered community input on various public-interest goals. Public meetings provided residents of Strafford and Thetford with the opportunity to comment on proposals. This input plus survey findings were used to help prepare the second component, the *Conceptual Site Re-Use Plan.* This plan was presented to the public and the Selectboards of Strafford and Thetford for their input. The conceptual plan was then revised and expanded into the final document, *The Elizabeth Mine Re-Use Plan,* the third component of the project. The last component is plan implementation, to be undertaken by interested residents and partners. It is anticipated that although some early actions will be implemented in the short term, much of the plan will be implemented after the EPA-funded clean-up is completed.

EPA Process

Following a lengthy period of examination, analysis, and community participation, EPA clean-up alternatives were developed and presented for public comment. A preferred alternative was identified in 2002. The next step, preparation of a Memorandum of Agreement (MOA), spells out the details and funding of the process. Once the MOA has been approved and funding secured, the EPA will work closely with the community on implementation steps.

EPA is committed to implementing actions to stabilize the tailing dam to protect downstream residents and prevent an ecological catastrophe. With the realization that it may be years before the Non-Critical-Removal-Action is funded, $3 million was approved in 2003 for emergency response work at Elizabeth Mine. This will allow contractors to install a diversion pipe and construct an earth buttress to stabilize the tailing dam. These measures will eliminate the risk of Tailing Pile 1 dam failure. Beyond this funding however, the EPA has not allocated any future funding for remediation.

The *Elizabeth Mine Re-Use Plan* is intended to dovetail with the EPA process so that plans for the site's re-use are identified in advance of clean-up actions. Early identification of resources, features, and areas that will be re-used will allow the EPA to design sympathetic clean-up activities.

Recent Research

Extensive investigations, studies, and testing have been undertaken to support the research and development needed for appropriate remediation proposals. Of these, two key documents have been prepared concerning the history and significance of the mine:

- Hartgen Archeological Associates, Inc., *Statement of Site Limits, National Register Eligibility, and Potential Resources in the Proposed APE, Elizabeth Mine, South Strafford, Vermont,* October 2000; and

- Public Archeology Lab, Inc., *Historical Context and Preliminary Evaluation of the Elizabeth Mine, South Strafford, Orange County, Vermont*, May, 23, 2001.

A number of other historical documents have been gathered in the volume entitled, *Notebook 1, Historical Documents, Elizabeth Mine, South Strafford, Vermont,* March 2000. A third report was completed in spring 2003 that includes research on and mapping of the primary resources, ruins, foundations, and sites. Chapter 2 of the *Site Re-Use Plan* includes a discussion of these resources.

Community Survey

Recognizing that every community member has a stake in the mine, residents were given an opportunity to provide input on potential re-uses. A community survey form was mailed to the 1,629 residents of both towns. 400 completed survey forms, or an average of 24.6 percent, were returned. Based on this data, a summary document entitled, *Community Survey Results: Elizabeth Mine Site Re-Use Options*, was prepared in 2002. Part One of the survey presented seven types of appropriate general uses. Part Two listed specific re-use options that could be considered for implementation, based on the assumption that the site's private-property owners would support the options. The options were discussed in public meetings that were conducted in 2002.

The survey results were analyzed by combined results for possible uses categories and then by more specific use activities. The rate of response for the seven possible uses was 48.5 percent, demonstrating that a high percentage of respondents did not rank every use. Frequently, only three or four uses were prioritized. If the respondents chose *No Planned Re-Use* as highest priority, they did not rank other uses. The combined findings for both towns are presented below in order of most to least preferred.

- *Conservation* – The majority of all respondents, 275 out of 400 returned forms, ranked *Conservation* as one of their top three priorities.
- *Interpretation and Education* – The majority of respondents from both towns also demonstrated a strong interest in interpretation and education uses at Elizabeth Mine.
- *Recreation* – Approximately 55 percent of respondents offered high marks for recreational uses of the site.
- *Municipal Uses* – Approximately 40 percent of respondents offered high marks for municipal uses.
- *No Planned Re-Use* was ranked fifth, *Cultural Uses* was ranked sixth, and *Commercial and Industrial Uses* was ranked last.

With respect to the implementation of more-specific activities at Elizabeth Mine, respondents tended to favor the installation of trails for interpretation and recreation, construction of an interpretive and education venue, and development of education programs. The overall findings break down as follows:

- Installation of **trails with interpretation** (#3) was considered the most favorable re-use option with 265 positive responses (74.9 percent). The rate of response for this option was 342 responses out of 400 returned forms (88.5 percent).
- A similar option to install **multi-use trails for recreation** (#12) received the second- highest number of positive responses of 231 (67.3 percent). The rate of response was 85.8 percent.
- Construction of an **interpretive and education venue** (#1) received the third-highest positive response of 223 (65.2 percent). The rate of response was 85.5 percent.
- Development of **education programs** (#4) received the fourth highest positive response of 213 (64.2 percent). The rate of response was 83 percent.

The three least popular re-use options were:

- **construction of a railway line** (#7), receiving 283 negative responses (87.1 percent);
- development of an **outdoor sculpture park** (#16), receiving 221 negative responses (74.4 percent); and
- redevelopment of the site for **light industry** (#21), receiving 215 negative responses (71.4 percent).

The *Community Survey* results indicate a strong interest among residents of Strafford and Thetford for re-use of the mine. Likewise, the results indicate a preference for re-uses that lie lightly upon the land. Trails and interpretive/ education venues will have less impact on the landscape than railways and hard-surface parks. Additionally, the preferred uses would be less expensive to construct and maintain.

Re-Use Vision

A key part of developing re-use options for the Elizabeth Mine is a vision statement that provides direction and guidance. The vision statement represents a consensus opinion, guiding the development of re-use options and establishing a standard against which future programs and actions will be measured. The statement below was developed based on input from participants at public meetings:

> The Elizabeth Mine site will be reborn as a prominent asset of the communities of Orange County and central Vermont. As a historical, environmental, recreational, and cultural asset, the mine will demonstrate the influence of the land on human activity and the impact of human activity on the land.

Re-Use Goals and Objectives

The goals below were based on input from the Strafford Historic Preservation Working Group and other groups with an interest in the mine. The goals were discussed and comments were provided at public meetings as a result of the *Community Survey* process. Each goal is followed by a series of specific objectives for implementation. These goals and objectives provide a basis for the recommendations of the re-use plan.

Goal 1 – Preserve historically significant resources and landscape features for present and future generations.

- **Identify and record resources and landscape features for preservation.** By drawing attention to the current state of these resources, greater efforts can be directed to their preservation. Some resources are no longer extant or have lost significant fabric except for their foundations. Some of the most significant standing structures are collapsing, and others are in danger of collapsing. The evidence of human activity in the mine landscape is slowly vanishing.

- **Stabilize and rehabilitate resources and features as necessary.** A program of stabilization and rehabilitation is needed to preserve the visible legacy of mining in South Strafford.

- **Establish a program of long-term maintenance.** Following recordation, stabilization, and rehabilitation, long-term maintenance will be needed to prevent key resources from deteriorating.

Goal 2 – Increase knowledge and appreciation of the cultural and natural history and significance of the mine.

- **Encourage and organize research efforts about the mine, its history, and its legacies.** Much research has been conducted and other projects are underway or being planned. More can be learned about this site, including how human activity has impacted the site and how the site has directed and impacted human lives.

- **Provide high-quality interpretation of the mine's history and how the natural resources and human activity intertwined.** The resources, in all of their variety, tell a compelling story of mining activity in South Strafford. The buildings alone, though, do not tell the whole story. By providing interpretation on-site and off-site, the stories of the landscape, artifacts, technology, and archeology can present a full picture of the mine's two centuries of history.

- **Develop educational programs with area schools, colleges, and universities.** Local instructors have already had success with this effort. Plans are being developed to add college-level curriculum. More of this can be developed and sustained over time.

- **Collaborate on programs and projects with other interpretive and educational organizations in the region.** Current efforts for type of activity are limited. With so much to learn, so many stories to tell, and with so many other opportunities in the region that could be linked interpretively and programmatically with mine-related efforts, the possibilities are great to enhance understanding and knowledge.

- **Provide on-site public interpretive/educational experiences.** With limited on-site access at present, there is little or no on-site interpretation. Interpretation presented at the actual resources that represent mining activity is more rich and engaging that off-site interpretation.

Goal 3 – Improve the environment and ecology of the mine and its surrounding area.

- **Study and improve the general understanding of the site's ecology.** Much can be learned about the ecology of the site. Research has been undertaken, but it has not been prepared in a format suitable for public use. The knowledge gained through years of study can be distilled and re-shaped for school children, college students, and adults of all ages, backgrounds, and education levels.

- **Encourage sympathetic environmental stewardship.** A key lesson arising from the clean-up is the need to be good stewards of the environment. A lack of stewardship degrades the environment, causing lasting, possibly irreparable, damage and posing threats to human health. In contrast, good stewardship ensures that humans can live, work, and play in symbiosis with nature.

- **Use the mine as a setting for environmental education and on-site programs.** The best place to present the lessons to be learned about stewardship and ecology is at the Elizabeth Mine. It can serve as an effective demonstration model and locale for existing and future environmental education instruction.

- **Build educational programs around the remediation measures, explaining the approaches and processes at work.** The other side of teaching sympathetic stewardship is instruction on the remediation of a degraded site. The short- and long-term remediation measures can be presented for discussion and analysis. This also presents opportunities to discuss potential costs and benefits to the environment, area residents, and government.

- **Create recreational opportunities that build upon environmental education programs.** Recreation is an important component of new uses for the site. Linking these opportunities with education programs can make both more effective and useful.

- **Monitor ongoing remediation measures and the environmental quality of the water and land.** Local diligence in monitoring remediation measures can help ensure their efficacy over the long term.

Goal 4 – Raise community awareness and appreciation for the mine as a community asset through recreation and on-site use.

- **Provide ways for the community to learn about and use the mine site.** Enhancing public awareness and appreciation for the significance of the mine will connect the public with the site in a manner that has not been experienced since the mine was active. This also bolsters recreational and educational projects that rely on public support.

- **Encourage residents and the public to visit the mine site and understand its history.** The most effective means of linking the public with the mine is to show it to them. If they can walk around the buildings, peer into the cuts, and ponder the scale of the site first-hand, their knowledge and appreciation of the mine will increase dramatically.

- **Create new recreational opportunities, establishing the mine site as a major passive recreational venue.** The landscape of the mine site is historic, scenic, and dramatic. With its varying topography, expansive vistas, and historical associations, the mine site presents many recreational opportunities that can be satisfying and broadly rewarding to a large cross-section of the public. These opportunities should be undertaken collectively with educational and interpretive activities.

- **Honor the mine, its heritage, and its legacies with programs, publications, and other activities for the public.** The efforts of the people associated with the mine for several generations, the significance of the mine, and the quality of the environment are worthy of education, interpretation, and recreation projects.

- **Plan activities and events that focus on the mine site.** Getting people onto the site to experience the topography, sights, sounds, and smells is key to the re-use planning efforts. Off-site efforts are good, but on-site efforts are needed to link people and the landscape.

Goal 5 – Build partnerships to strengthen the community and to connect with other communities.

- **Seek organizations and entities with have similar goals and objectives to help in the efforts.** Implementation of even the basic projects outlined in this *Site Re-Use Plan* will require the help of partner organizations that share similar goals.

- **Collaborate with other local and statewide organizations.** A variety of partnering organizations such as regional and state-level organizations, departments, agencies, foundations, and commissions will be needed. Ideally, these will have experience and skills in many different aspects of

the mine re-use projects. Local organizations cannot supply all of the help that is needed.

- **Enlist residents and nonresidents for participation in on-site programs, projects, and activities.** People possessing knowledge, skills, and energy should be sought from a variety of quarters.

- **Link recreation projects and programs, such as a trail system, with projects and programs off-site.** On-site projects can be very effective. Off-site projects can reach a great number of people. Together, on-site and off-site projects can create a connective experiential web that effectively serves a great number of people.

Implementation

A nonprofit organization comprised of committed volunteers and community leaders from the region will need to take the lead in re-use of the mine site. Initially, it is anticipated that re-use efforts will rely upon existing organizations, such as the Strafford Historical Society, advocates for the Elizabeth and Ely Mines, Orange County Copper Mining District Coalition, and municipalities. The level of effort needed for implementing re-use scenarios will require the resources of a well-organized entity focusing solely on this effort. It is recommended that local volunteers, organizations, and municipalities join with the efforts underway for the Ely Mine to establish an Orange County Copper Mining District with one organization coordinating interpretation and preservation efforts for the three copper mines in the county.

Chapter 2
Site Overview

The Elizabeth Mine constitutes one of the largest and most intact historic mining sites in New England and includes the only intact cluster of historic hard-ore metal mining buildings in the region. Its landscape resources represent the transition from small-scale nineteenth-century mining to large-scale twentieth-century mining, and both copperas and copper production. It has a diverse range of features from mining, milling, and smelting activity. The surviving 850-acre Elizabeth Mine includes areas devegetated by mining, roads, pits, shafts, tailings and waste-rock piles, building foundations, and standing remains. In particular, the World War II flotation mill is a rare surviving resource in the northeastern U.S. Archaeological features include the buried remains of structures and features related to several periods of mining operations at the site. Even the deposits of waste materials are valuable landscape features that possess information about the history of metallurgical technology.

Historical Overview

The historic value of Elizabeth Mine's resources can see seen in terms of their visual landscape value and potential archeological value. Mining landscapes are the physical result of choices made based on geology, location, changing technologies, market conditions, and other factors that evolved over time. Elizabeth Mine is a complex site with overlapping layers of historic activity and resources. For a century and a half, the Elizabeth Mine was in operation longer than the other two mines sites in Orange County. It produced the highest tonnage of copper and left the largest and most complex mining landscape. The site is also unique among the three mines for its multiple

smelting sites, including the early 1830s site and the intact 1880s Sargent Brook site.

The original company to operate this mine was the Vermont Mineral Factory Company, chartered in 1809 to extract and process copperas. Copperas, an iron sulfate, was used in dye and ink manufacturing, for treating timber, and as a disinfectant. The ore body found in southeast Strafford is one of the largest deposits in New England. The importance of domestic copperas production led the U.S. government to protect it with tariffs during the War of 1812.

Between 1824 and 1833, the mine's annual production averaged 750 tons, with a peak output of 1,500 tons in 1833. During this period, the ore was blasted out of the north cut, usually with gunpowder, broken with sledgehammers, and then wheeled to the tailings pile by handcars. There it was formed into conical heaps for roasting, started either by smothered combustion or fueled by the application of burning wood. The temperature was controlled by spraying water onto the pile. Roasting rock oxidized and decomposed the sulfide minerals, releasing the iron sulfate. Following roasting, water from Copperas Brook was diverted through the pile for several months, washing over the rocks and generating the copperas "liquor" which accumulated in small holding ponds on the hillside. The liquor was then diverted through several tiers of basins in which brush was inserted to aid evaporation, and then sent into lead-lined vats and boiled. After it acidified, the liquid was sent to another container to cool and crystallize, a process that took between 8 and 10 days. When complete, the crystallized copperas was shoveled into packing rooms and loaded into casks. The casks were transported by wagon to other parts of the country. This labor-intensive production process continued until the 1870s when less-complex methods were developed.

Copper mining was attempted as early as 1820 and 1830, but it was not successful because the copper was difficult to extract from the ore. In 183, Isaac Tyson, Jr., undertook experiments that resulted in an efficient and profitable production method. By 1834, he had built six furnaces at the site. The first, built at Furnace Flat, produced until 1837 when technical, transportation, and financial problems shut down operations. Production resumed intermittently after 1837. In 1848, the Connecticut River Valley railroad was constructed, and the mine built a depot at Pompanoosuc to ship its products.

In the late 1870s, Isaac Tyson's son, James, inherited the mine and renamed it the Elizabeth Mining Company after his wife. Most of the ore was mined from the North Cut. In 1886, a vertical shaft was cut down into the ore body from the top of Copperas Hill. In 1898, a 1,340-foot-long horizontal

adit was cut to the ore body and served as the primary accessway until 1958. James and his brother Jesse operated the mine until 1904 when mounting debts sent the mine into receivership.

In 1908, August Heckscher installed new equipment and built a heavy hydroelectric plant in the town of Sharon. He added buildings including a mill, a furnace, magnetic separators, trestle tramways, a 400-foot brick flue, and a 125-foot chimney. An explosion in the furnace ended the project, and no production occurred between 1910 and 1916. In 1916, a new smelter was constructed, but production did not begin because of technical difficulties. In 1917, a flotation plant was constructed, and by 1918, 300,000 pounds of copper concentrate were produced. The plant closed in 1919. In 1925, the American Metal Company leased the mine and produced more than 1,700 tons of copper concentrate. The National Copper Corporation remodeled the mill in 1929 and began production, but it was soon closed in 1930 by economic impacts of the Great Depression. All told, between 1830 and 1930, an estimated 250,000 tons of ore were removed, yielding approximately 5,250 tons of copper.

During World War II, the wartime demand for copper increased greatly and the Vermont Copper Company reopened the mine in 1942. Following the war, the mine was sold to Appalachian Sulfides, Inc., a subsidiary of the Nipissing Mines Company Limited of Canada. Tailings Piles 2 and 3 were created during this period. With advances in metallurgical technology and techniques, the mine yielded its greatest production rates between 1942 and 1958: almost 3,000,000 tons of ore were mined, yielding 50,460 tons of copper metal. The mill could produce as much copper in one day in the 1950s as it produced in one year in the 1830s.

Natural Features

Elizabeth Mine's location in rugged uplands of east-central Vermont is largely glaciated mountain terrain. One of the major classes of metallic ore found in this region is the group known as Appalachian sulfides. These ore deposits consist of iron sulfide in the form of pyrite, often mixed with less amounts of copper, in the form of chalcopyrite, and sometimes zinc, lead, and other trace metals. The genesis of Appalachian sulfides is generally understood to have been deposited on the ancient seafloor by hydrothermal vents that precipitated metals leached from underground magma by hot seawater. The geologic types include the Devonian Waits River Formation of metamorphosed calcareous shale, shale, quartz limestone, and dolostones, and the Devonian Gile Mountain Formation of metamorphosed black shale and greywacke. These are intruded with Devonian Standing Pond Volcanics, consisting primarily of metamorphosed basalts. Throughout is the ore body of sulfide deposits that run largely north-south. On the surface is dense

glacial basal till, sand and gravel outwash deposits, and Quaternary alluvium deposits in the drainage channels.

The ore body, and the corresponding open cuts, shafts, and adits are located amid the rolling hills and ridges of the western mine site. A majority of the mine-related resources, however, lie in the basin of Copperas Brook as it drains northward between Copperas Hill and Gove Hill to the West Branch of the Ompompanoosuc River. The river passes roughly east-west across the northern mine site. The slope of its basin is where Tailings Piles 1 and 2 were deposited. North of this area the topography drops to the river and the brook forms a small cut. Gove Hill is the major landmark on the eastern mine site.

The site today is largely wooded with semi-mature deciduous and coniferous trees. Stands of conifers are located along the eastern uplands, at Copperas Brook, and on the south side of the West Branch in the site's northeast corner. Tree cover does not extend onto the tailings piles. Tailings Pile 1 contains a patch of dense, shrubby material, plus other groundcover. Tailings Pile 2 is largely treeless, but covered with groundcover. Tailings Pile 1 is almost wholly exposed.

Built Landscape Features: Tailings Piles, Cuts, and Shafts

Five landscape features dominate the mine site's landscape: three tailings piles and two open cuts. These dramatic features are testament to the scale of activity at Elizabeth Mine, and to the amount of labor and resources required to process the copperas and copper.

Tailings Piles 1 and 2

Tailings Piles 1 (TP1) and Tailings Pile 2 (TP2) lie roughly in the center of the mine site. TP1 is approximately 30 acres and TP2 is 5 acres. The piles are terraced northward with TP2 stacked up the valley and spilling onto Tailings Pile 3 (TP3). The northern edge of TP2 is approximately 35 feet above TP1. The north edge of TP1 is approximately 110 feet above the valley floor that falls away to the north toward the river. Both piles are generally level, but TP2 exhibits a large cut where the drainage system failed, allowing Copperas Brook to create a large gully. The edge of TP1 is sharply defined with three distinct, faceted sides.

Tailings Pile 3

Lying between Mine Road and the North Cut, and to the southwest of TP2, are mounds of material known as TP3. Unlike TP1 and TP2, which resulted mainly from sulfide milling for copper production, TP3 reflects the period of copperas production during the 1800s. The mounds possess hues of pale

yellow, amber, ochre, and sepia, which relate to the changing methods of copperas production. Because the only extant remains of the copperas factories are foundations, the mounds are the most significant artifacts of copperas production.

The North and South Cuts

West and southwest of the tailings piles are two immense open cuts from which material was extracted for copperas production and copper milling. Their north-south alignment identifies the location and orientation of the ore body. The North Cut was opened during the first phases of mining activity on the site. Dug by hand and black-powder explosives, it is long, narrow, and deep. Tailings Pile 3 is located adjacent to the cut to the east. During the 1940s and 1950s, the North Cut was deepened and a lateral shaft added.

The South Cut, more than twice as long as the North Cut, was made during the 1940s and 1950s mainly by steam shovels. The material was then trucked northward to the mine buildings for processing. Like the North Cut, a shaft was dug laterally into the cut's north wall.

Tyson Shafts

Up the south flank of Copperas Hill from the North Cut are the caved-in openings for two vertical mine shafts. These shafts were excavated in an attempt to burrow underground to reach the ore body. The next, more successful effort was the excavation of the 1898 adit which served as the primary accessway to the ore body for the next 60 years.

South Tailings Pile

Located east of the South Cut is a small tailings pile that may have been made with material excavated in the uncovering of the ore body in the South Cut. It is located along a mine road connecting the Old South Mine site with Mine Road.

Built Features: Standing Mine Structures

Since the late-nineteenth century, mine activity has centered on the 1898 adit as the primary entrance to the mine. Most of the surviving buildings and structures are in this vicinity. Domestic buildings are located along Mine Road or on roads and driveways that flank Copperas Hill. Within the core mine area, there are two levels where buildings are located. The top tier is the same level as the adit, and several structures line the adit road. The flotation mill, crushing plant, and heating plants are on the second, lower tier and are accessed by a steep road.

Although the site has been in use for almost 150 years, very few of the built features constructed prior to 1942 survive. None directly associated with copperas production survives, although two residential structures, Buena Vista and Copper Castle, date from that period. The Infirmary/Carpenter Shop appears to date from the mid-nineteenth century, but its use at that time is not confirmed. Today it is a residence.

During the construction for World War II production, approximately 30 buildings were built between 1942 and 1943. Today, only 17 remain and are subject to deterioration and weathering. Each surviving building is described below, including its condition. The first four structures were constructed before 1942, and others were constructed by 1943.

1. 1898 Tyson Adit

The adit was built into the side of Copperas Hill, to the east and down the slope from Mine Road. Its small entrance is marked by a stone structure which has been closed with an iron gate. Its condition is poor as the shaft has collapsed immediately behind the entrance structure. The adit has tremendous interpretive value as the primary access point underground.

2. Copper Castle

Built as a residence, possibly as early as the 1840s or 1850s, Copper Castle sits high on the flank of Copperas Hill overlooking the core mine site. It may have been constructed for a mine official. The wood-frame structure continues to be used as a residence. The condition is good.

3. Buena Vista and Outbuildings

This brick residence appears to have been constructed in several phases. The earliest part, the "back kitchen," was constructed with wood circa 1795. The main brick portion was constructed approximately 1859. It was purchased by the Tyson family in 1890. Outbuildings include a barn complex, shed, and ash house. The house and outbuildings are in good to very good condition.

4. Infirmary/Carpenter Shop

This structure appears to be assembled from buildings dating to four distinct periods. The oldest part of the wood-frame, one-and-a-half-story structure appears to have been constructed before 1850. Other portions were constructed between 1860 and 1880. Its use prior to 1942 is unknown, but during the war years, the northern portion was used as an infirmary and the southern portion as a carpenter shop. The structure is currently used as a residence and is in good condition.

5. Ball Mill and Flotation Mill Building

The Ball Mill and Flotation Mill Building, the Thickener and Dryer Building, and the Crushing Plant (the latter two discussed below), are among

the most significant buildings on the mine site due to their central role in the mine operation during the height of production from 1942 to 1958. Other design features are tied to their use in production: constructed with heavy reinforced-concrete foundations, trussed and bolted pine timbers, gypsum board siding, and interior air cells to retain heat during cold weather, the crushing plant, mill, and thickener/dryer buildings were sited in tiers on the hillside to take advantage of the flow of water and gravity during processing. A now-missing rail line connected the adit to these buildings.

The Ball Mill and Flotation Mill Building is a long wood-frame building built into the slope of the lower tier. It has timber framing that may have been recycled from an earlier structure. Much of the roof has collapsed, exposing the interior. The building is in poor condition. The deterioration can be slowed with stabilization measures to allow future interpretation. Until that happens, access should be restricted because it is a safety hazard.

6. Thickener and Dryer Building

Connected to the mill building, the Thickener and Dryer Building is an immense structure. The eastern portion of the roof collapsed in 2002, thus accelerating the rate of decline. On the first floor, under the hole in the roof, is a unique feature: a massive frame composed of square timber units 11 inches thick and bolted together. Another special feature of the building is its exterior sheathing structure that protected the exterior envelope from machinery vibrations. Much of the machinery has been removed. Unlike the mill building, the Thickener and Dryer Building is in fair condition. Emergency steps to repair the roof would greatly increase the lifespan of this building. It presents few options for re-use, but many opportunities for interpretation.

7. Crushing Plant

Located adjacent to the Thickener and Dryer Building, this building has collapsed and fallen into ruin. The solid foundations, however, would be very useful for interpretation.

8. Office/Warehouse Building

This structure appears to have been built in two sections. Located on the top tier near the mill entrance, the wood-frame building has a two-story portion that served as an office with an attached one-story warehouse. A porch runs the length of the building. Like most of the war-era buildings, it is clad in patterned asphalt shingles that mimic tan-colored brick masonry. It is in fair condition, but will continue to deteriorate without intervention. Due to its location and floor plan, this building presents many opportunities for re-use.

9. Machine Shop

Located on the upper tier, this one-story building has a rectangular plan with an awning and gabled roof featuring three monitors. The interior plan is largely open. The building is in fair to good condition. With its plan and location near the Office/Warehouse Building, it presents re-use opportunities, especially as exhibit or meeting space.

10. Change House

The Change House is located at the south end of the upper tier near the adit. A large rectangular building with a gabled roof, it housed the shower and changing room for miners. The interior is divided in two main sections. Two lean-to additions are attached to the east elevation. These are in poor condition, but the main section is in fair to good condition. This building can be re-used and interpreted.

11. Compressor Building

Located between the Machine Shop and Change House is the Compressor Building, a one-story rectangular structure with a gabled roof. The roof and walls have collapsed, leaving a standing ruin. The building presents many safety hazards and offers no re-use possibilities. It can be interpreted.

12. Water Tank Building

Located at the entrance to the mine complex, the Water Tank Building is a tall, one-story structure with a gable roof. It has been boarded up. The west side of the roof has begun to collapse, opening the structure to greater threats of deterioration. Its central location offers possibilities for re-use, but it will need stabilization to prevent further deterioration.

13. Laboratory/Assay Office

The Laboratory/Assay Office is a one-story, gable-roof structure located east of the Water Tank Building. Used as a residence, the Laboratory/Assay Office is the only structure currently in use in the mine's core site. The occupant has stated that the interior has no features related to its laboratory use. The condition is good.

14. Mill Garage

Located on the lower tier, the Mill Garage is a long, one-story building with a four-bay garage. Overall the condition is fair, but the west wall is deflecting inward and needs stabilization. It offers possibilities for re-use and interpretation.

15. Heating Plant

Northeast of the Mill Garage is the Heating Plant. The one-and-one-half-story structure is dominated by a tall smokestack. The building is divided into a series of small rooms. Its condition is good, but the masonry

smokestack needs repair. Its floor plan may limit re-use options, but it does present opportunities for interpretation.

16. Club House

Located along Mine Road, the Club House is a one-and-one-half-story, frame building. Alterations over time have removed or hidden original features of the building. The condition is good. It is currently used as a residence.

17. Community Center

Located on the east side of Copperas Hill, this structure served as a recreation center for mine workers. A one-story structure of irregular plan, it has gabled roofs and a cinder- block foundation. It is currently a residence.

18. Trestle

The trestle, located over the roadway to the lower tier, is the last remaining feature of the mine-railway that connected the mine shafts to the processing buildings. Supported on concrete piers, an earlier fire destroyed most of the wooden elements. The iron trestle has surface oxidation and the piers and retaining walls are in fair to poor condition. Stabilization would allow future interpretation.

19. Miscellaneous Sheds

There are a number of small sheds and garages on the site. Conditions vary, but all have been neglected. Few, if any, have potential for re-use. Their interpretive value is also low compared to the more significant structures.

20. Pompanoosuc Depot

The depot was built circa 1942-43 as a storage depot for materials being shipped out via rail. It is a one-story, gabled-roof wood-frame structure in the small settlement of Pompanoosuc. Though this resource is not on the mine site, it is within the proposed mine historic district. Its condition is fair and it is currently in use.

Built Features: Building Ruins, Foundations, and Archeological Sites

A variety of mining activity evidence can be found in the remains of mills, smelters, barns, houses, and other structures. These features comprise standing structures, foundations, and/or ruins. While they do not possess much potential for re-use, they can be studied, investigated, and interpreted.

1940s Pump House

One ruin from the wartime mining period is the 1940s pump house. It is located on Copperas Brook and provided water to the mine facilities. The building is partially collapsed but still houses the machinery.

Nineteenth-Century Building Foundations

Evidence of the pre-1942 mine is found in fieldstone foundations located on upper Copperas Brook. Most date from the mid- to late-nineteenth century when mining activity focused on the open cuts. A few foundations are near North Cut, but most are found along the hills east of TP3 and on either side of the brook. Most significant are the remains of riverside furnaces and worker housing along Ompompanoosuc River, the 1880s Tyson Furnace, the 1830s Tyson Furnace, and foundations adjacent to the two Tyson Shafts. Foundations of copperas factories are also found between TP3 and Mine Road, with some foundations buried beneath TP3. East of Copperas Brook and south of Mine Road there are several other sets of foundations. Archeology at these sites will likely yield information about this earlier period of history.

Furnace Flat Foundations and Resources

Located on the flatland between the Ompompanoosuc River and Route 132 is Furnace Flat, the site of a sawmill, paint shop, cooper shop, and several furnaces. The site was in use from the 1850s to the 1870s. Several foundations remain, as do the bridge abutments. Archeology at this site will likely yield much information about this period of use.

Old South Mine Site

South of the South Cut is the site of the Old South Mine, believed to be an early-nineteenth-century mining operation. Abandoned shortly after it opened, an unsuccessful attempt was made to re-open it in the 1860s. The site is linked to other features by Mine Road. This site can be interpreted.

Other Archeological Sites

There is a high probability that below-ground resources will be found in proximity to extant buildings, ruins, foundations, and sites. Archeological resources are also likely to be found around the cuts, within the tailings piles, and along the major transportation routes within the mine area.

Built Features: Mine Roads

Significant components of the mining landscape are the roadways and transportation corridors. The primary road across the site, Mine Road, is still in use. Other roads, such as the Copperas Road, a Class IV road connecting Mine Road and the Old South Mine site, are not maintained but are open to

the public. Several roads built for mine uses are now privately owned and maintained. These include the driveway to Copper Castle, the road along the western flank of Gove Hill, and the road connecting the 1880s Tyson Furnace site with the cuts. There are several roads that have been abandoned, including the one leading from the lower tier downhill to the ruined river bridge abutment. Only a trace of this road remains and portions of it are now part of the creek bed.

Chapter 3
Site Re-Use Issues

Elizabeth Mine's re-use goals, vision, and objectives have been identified. The next step in the planning process is to identify issues that will have an impact on implementation. These include preservation of built and natural resources, ownership and access, public safety, traffic, cost, and maintenance.

Preservation of Resources

The mine's historic resources and landscape features have significant value in the history of Vermont and the nation. The Elizabeth Mine Historic District has been determined eligible for listing in the National Register of Historic Places. After more than 50 years of neglect, many of these resources and features are in varying states of deterioration. The tailings piles are significant for their archeological information, yet clean-up would significantly impact them. Key buildings that served central functions in the mining operations are beyond saving. Vacant structures, building foundations, and other landscape features are threatened with demolition-by-neglect and by natural processes. Their preservation will rely upon identifying viable re-uses, preparing preservation plans and construction documents, and securing the necessary funding to undertake the work. Identifying the appropriate treatments—stabilization, rehabilitation, or restoration—for the significant mine-related resources and features is a top issue to be addressed as soon as practicable.

Public Access

All of the preferred re-use options involve public access to the site. Careful re-use planning during implementation should address volume controls, frequency of access, and the extent of access onto the site.

Property Ownership

Linked with the issue of access is property ownership. It is anticipated that public access will be accomplished using a variety of voluntary means: agreements with landowners for access with liability waivers and guidelines for use, leases for use and access, joint tenancy of land interests, donation or purchase of easements, fee-simple transfers in ownership, or a combination of all of the above. All preferred re-use options will be affected by the ownership status of parcels at the mine site.

Safety

Public and resident safety is an issue due to the deteriorated state of many buildings. Other hazards include the open cuts and adits, tailings piles, debris piles, and the steep topography of the site. All preferred re-uses of the site will have to address the safety issues posed by the resources and landscape features.

Traffic

All on-site re-uses of the mine will increase traffic on the unpaved access road. Traffic volume will impact the residents, neighbors, and the roadbed itself. On-site traffic is an additional issue because of carrying capacity. Careful traffic planning during implementation should avoid exceeding the optimum traffic volume for the site to reduce deterioration and safety risks. Roads may need to be upgraded to accommodate increased traffic, which presents additional issues.

Expense of Re-Use

All re-use options except No Re-Use will incur expenses for development, construction, and maintenance. Although financial and human-resource support is available, capital and maintenance costs will be an obvious factor in determining the extent of site re-use.

Long-Term Maintenance

Long-term maintenance of the mine site is an issue whether or not the site is redeveloped. Existing buildings and any new construction needs to be maintained. Maintenance requirements, however, do not overshadow the benefits of re-use; rather, a program of re-use that includes selective stabilization and mothballing of historic structures will reduce long-term maintenance issues.

Chapter 4
Site Re-Use Options

Residents of the communities of Strafford and Thetford have expressed a strong interest in the mine site and the opportunities it offers. This chapter presents a number of potential re-use options for which the community has expressed interest and support. The detailed outline is organized by recreation, interpretation, education, preservation, and municipal uses.

The outline presents a menu of options with several options listed for each category of use. These options are not mutually exclusive, but represent varying levels of development. Each option will require specific levels of organization, commitment, and funding. Choosing one option for implementation over the short term would not preclude the possibility of implementing a more ambitious option at a future date. All on-site options allowing public access are possible only with voluntary landowner participation through contractual agreements, conservation easements, purchase of land, or other means.

The format below includes a brief description of the option, order-of-magnitude costs and the basis of the estimate, and potential funding sources described in more detail in Chapter 7. Order-of-magnitude cost estimates are provided to aid preliminary planning efforts and fundraising efforts. The list of potential funding sources should also be considered a starting point. A variety of other funding opportunities exist and will need to be explored as planning progresses, and while the information provided about these funding sources is currently accurate, programs may change over time, and the information will need to be updated accordingly. Private donations are another source of funding that will need to be sought to help fund each option, as well.

In developing many of the cost estimates below, two sources of information were used: the National Park Service (NPS) and the Vermont Youth Conservation Corps (VYCC). The NPS generates and regularly updates cost estimates for construction projects undertaken at its parks and sites. Specific estimates are developed for each region of the country. Though these estimates are accurate and useful for planning purposes, these estimates often reflect higher overall costs that may be associated with government-sponsored construction, resulting in estimates that tend to be higher than estimates for work undertaken by the private sector or nonprofit organizations. To provide a counterpoint to these estimates, the VYCC, who has extensive experience in the construction of trails and trail-related structures in Vermont, was consulted to obtain general estimates that may be more applicable for the re-use options at the mine site. The estimates from both the NPS and the VYCC are general estimates and do not account for any particularities of the mine site, such as topography, density of undergrowth, and other factors that may influence actual estimates. At such time when such projects are to be implemented, more detailed cost estimates should be prepared.

As discussed previously, the EPA is developing a Memorandum of Agreement (MOA) with the state for future tasks the EPA will undertake to mitigate adverse effects to the Elizabeth Mine Historic District. Several of the proposed mitigation tasks are listed below as re-use options. These options have been identified by listing the EPA as a potential funding sources. Other mitigation tasks from the MOA that do not relate directly to the potential re-use of the mine for recreation, interpretation, education, preservation, or municipal uses are not listed.

Recreational Options

Trail Loop – Construct a 1.5-mile multi-use trail loop that would start from a trailhead that may or may not be on-site. The trail would connect primary historic resources and landscape features, and then loop back to the trailhead. One possible route could start at Mine Road and loop up to the North Cut, around TP3, and back to the trailhead.

Cost estimate
Vermont Youth Conservation Corps (VYCC) Estimate: 1.5 miles x $7,000 per mile = $10,500, plus the cost of bollards and other materials. Estimate depends on understory conditions and topography.
NPS Estimate: Using volunteer labor and borrowed equipment, 1.5 miles x $53,000 per mile = $79,500 plus Construction Supervision (8%), Construction Contingency (10%), and Design Costs (17%).

Potential Funding Sources

EPA – as a component of the proposed mitigation (potentially)
Recreation Trails Grant Program, Vermont Agency of Natural Resources
Vermont Housing and Conservation Board
The Rivers, Trails and Conservation Assistance Program, National Park Service

Trail Network – Construct a 5-mile network of recreational trails to connect key historic resources and landscape features on the mine site. There would be three trailhead pavilions and a pedestrian bridge over the West Branch of the Ompompanoosuc River. The network would tie into existing adjacent trails and old roads, including the trail used by the Vermont Association of Snow Travelers (VAST). Limited trail enhancements such as small footbridges, drainage bars, and benches could be installed.

Cost estimate

Trail:

VYCC Estimate: 5 miles x $7,000 per mile = $35,000, plus the cost of materials and labor to construct small bridges and other amenities. Estimate depends upon understory conditions and topography.

NPS Estimate: 5 miles x $53,000 per mile = $265,000, plus Construction Supervision (8%), Construction Contingency (10%), and Design Costs (17%).

Pavilion (each):

NPS Estimate: 200 sf x $90 per sf = $18,000, plus Construction Supervision (8%), Construction Contingency (10%), and Design Costs (17%).

Pedestrian Bridge:

NPS Estimate: $50.00 per square foot for prefabricated bridge (area of platform to be determined) plus Construction Supervision (8%), Construction Contingency (10%), and Design Costs (17%).

Potential Funding Sources

EPA – as a component of the proposed mitigation (potentially)
Recreation Trails Grant Program, Vermont Agency of Natural Resources
Vermont Housing and Conservation Board
The Rivers, Trails and Conservation Assistance Program, National Park Service

Extensive Trail Network – Construct a 10-mile network of trails to connect the majority of historic resources and landscape features in the proposed historic district. The trail would extend from the mine site down to the West Branch of the Ompompanoosuc River. Several trailheads would be needed, each with sufficient parking areas. Trail enhancements could be installed such as parking facilities, pedestrian bridge over the river, benches, latrines, and other park facilities. The trail would be coordinated with a regional effort to link the Elizabeth Mine to other Orange County mine sites using overland trails.

Cost estimate

Trails:

VYCC Estimate: 10 miles x $7,000 per mile = $70,000, plus the cost of materials and labor for the pavilions, small bridges, and other amenities.

Estimate depends upon understory conditions and topography.

NPS Estimate: 10 miles x $53,000 per mile = $530,000, plus Construction Supervision (8%), Construction Contingency (10%), and Design Costs (17%).

Pavilion (each):

NPS Estimate: 200 sf x $90 per sf = $18,000, plus Construction Supervision (8%), Construction Contingency (10%), and Design Costs (17%).

Pedestrian Bridge:

NPS Estimate: $50.00 per square foot for prefabricated bridge (area of platform to be determined) plus Construction Supervision (8%), Construction Contingency (10%), and Design Costs (17%).

Potential Funding Sources

EPA – as a component of the proposed mitigation (potentially)

Recreation Trails Grant Program, Vermont Agency of Natural Resources

Vermont Housing and Conservation Board

The Rivers, Trails and Conservation Assistance Program, National Park Service

Athletic Fields – The re-graded surface of Tailings Pile 1 would be designed for use as community athletic fields for soccer, softball, football, lacrosse, and field hockey. A parking area would be constructed adjacent to the fields. A new building might be constructed to provide public toilets and storage, or an existing mine building such as the lower garage could be rehabilitated.

Cost estimate
To be determined at time of implementation

Potential Funding Sources
Land and Water Conservation Fund Grants, Vermont Agency of Natural Resources
Vermont Recreation and Parks Association Challenge Grant
Vermont Housing and Conservation Board
U.S. Soccer Foundation

Discovery Camp – An area near the athletic fields would be established for a children's play area with facilities designed to interpret the history and legacy of the mine. The facilities would be interactive, demonstrating mine-related processes in a way that is fun and informative for school children. An example is the Science Park recently installed at the Montshire Museum. The park consists of a series of exhibits that demonstrate various scientific principles in a manner that is interactive and engaging.

Cost estimate
To be determined at time of implementation

Potential Funding Sources
Land and Water Conservation Fund Grants, Vermont Agency of Natural Resources
Vermont Recreation and Parks Association Challenge Grant
Vermont Housing and Conservation Board

Interpretive Options

Off-Site Exhibit(s) – One or more interpretive exhibits would be developed for temporary or permanent installation at a location off-site. Possible locations include a publicly accessible building or site in South Strafford or Strafford; at the Ely Mine site; at a regional educational facility such as Dartmouth or Johnson State College; or at a regional museum facility such as the Montshire Museum.

Cost estimate
Exterior exhibit: $5,000 per exhibit, includes planning, content development, fabrication of base and interpretive fiberglass-embedded panel, 10-year warranty
Interior exhibit: $2,500 per exhibit panel, includes planning and content development for interior-quality panel and wall-mount

Potential Funding Sources
EPA – as a component of the proposed mitigation (potentially)
Historic Preservation Fund, Vermont Division for Historic Preservation
Sustainable Future Fund, The Vermont Community Foundation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants

Trailhead/Roadside Exhibit(s) – An interpretive exhibit would be installed at one or more selected trailheads. Exhibits would consist of multiple interpretive panels installed within an open, protective canopy, such as a kiosk or small pavilion. An example is found at the Montshire Museum's solar-powered audio exhibits housed in two wood structures. The exhibit would have a holder for trail maps or trail brochures.

If the trails are not constructed (see the discussion on *Site Re-Use without EPA Remediation and Mitigation* in Chapter 5), then trailhead exhibits could be constructed along the roadside. Pull-off areas would be constructed along Mine Road to allow vehicles to exit the traffic lanes. A small open area could be provided for the exhibits placed in strategic locations providing views of key site features, such as Tailings Piles 1, 2, and 3, and the World War II buildings. The content of each exhibit would focus on what can be seen from that location. The exhibit-area parcels might be either subdivided from larger parcels through sale or donation; the area might be leased for exhibit use; or an access and use easement might be purchased from or donated by the landowner. Voluntary participation of property owners would be required for any such agreement.

Cost estimate
Panel: $5,000, includes planning, content development, and fabrication of exterior-quality, fiberglass-embedded panel
Kiosk: $1,000 for materials, plus labor

Potential Funding Sources
EPA – as a component of the proposed mitigation (potentially)
Historic Preservation Fund, Vermont Division for Historic Preservation
Sustainable Future Fund, The Vermont Community Foundation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants

Trailside Interpretive Signage – Interpretive signage would be installed along the recreational trails at locations of significant resources and landscape features. The character and number of signs would be appropriate to the development level established for the project. The signs could be similar to standard National Park Service interpretive waysides or custom designed. Implementation of the signage could be phased-in. An interpretive program should be developed to organize the presentation of content for multiple exhibits.

Cost estimate
Each exhibit: $5,000, includes planning, content development, fabrication of base and interpretive fiberglass-embedded panel, with 10-year warranty
Interpretive Program: $5,000 to $15,000 depending on number of exhibits

Potential Funding Sources
EPA – as a component of the proposed mitigation (potentially)
Historic Preservation Fund, Vermont Division for Historic Preservation
Sustainable Future Fund, The Vermont Community Foundation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants

Interpretive and Educational Facility – A small interpretive and educational facility would be established in an existing building to provide in-depth, on-site interpretation of the Elizabeth Mine. The existing building, possibly the historic office building, would be rehabilitated and adaptively re-used in accordance with the *Secretary of the Interior's Standards*. The focus of interior exhibits could include the mine's history, environmental restoration, and the ecology of the region. The building would also house offices for the management entity, archives, and a meeting room for educational and public use.

The interpretive facility would be open on a regular basis, perhaps weekends from June through October, and by appointment. It would be staffed by volunteers, and possibly in the future by paid staff, depending upon the level of interest and development. Exterior exhibits located adjacent to the building would be accessible year-round when the building is closed. The facility would be a trailhead for the on-site trail network and also serve as a local community center. The facility could be up to 3,000 square feet of space, with 1,500 for offices and services, 1,000 for exhibit space, and 500 for meeting space.

Cost estimate
Rehabilitation: $300,000 to $450,000 at $100 to $150 per square foot
New Construction: $135,000 to $285,000 at $45 to $95 per square foot
Exhibits: $150,000 at $150 per square foot of exhibit space
Plus the estimated $50,000 costs of site work, utilities, landscaping, etc.

Potential Funding Sources
Humanities Grants, Vermont Council on the Humanities
Vermont Collections Care Program
Historic Preservation Fund, Vermont Division for Historic Preservation
Community Development Block Grant Program, Vermont Department of Housing and Community Affairs
National Preservation Loan Fund, National Trust for Historic Preservation
Save America's Treasures, National Park Service
Community Facility Grants, US Department of Agriculture
Vermont Collections Care Program, Fairbanks Museum
Humanities Grants, Vermont Council on the Humanities
Wellborn Ecology Fund, Upper Valley Community Foundation Grants
Vermont Arts Council, Cultural Facilities Grants
Opportunity Grants, Vermont Arts Council
Regional Block Grant Program, Vermont Department of Tourism and Marketing

Interpretive Park – An interactive interpretive park would be established for the Tailings Pile 3. The park would be developed after remediation. The amount of pile removal remains to be negotiated between the EPA, the state, and the local managing nonprofit. The latter would oversee preservation of the piles and take the responsibility for remediation, maintenance, and operation costs resulting from continued acid run-off. The interpretive park could include a series of interactive exhibits about the historical use of the copperas mine, the changing technologies, and the effects of mining on the landscape. The park would serve as an important interpretive venue for the mine.

Cost estimate
To be determined at time of implementation

Potential Funding Sources
Humanities Grants, Vermont Council on the Humanities
Vermont Collections Care Program
Vermont Recreation and Parks Association Challenge Grant
Historic Preservation Fund, Vermont Division for Historic Preservation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants
Vermont Arts Council, Cultural Facilities Grants
Opportunity Grants, Vermont Arts Council
Regional Block Grant Program, Vermont Department of Tourism and Marketing

Educational Options

Trail Map(s) – A small trail map would be prepared that includes general trail information. One map would be prepared for each level of trail development: loop; system; or network. A brief discussion of the significance of the mine site would be included. The trail map would be in use until the trail brochure is developed to replace it. The maps would be available at trailheads.

Cost estimate
Basic: $500 for basic layout and 2,000 black and white photocopies

Potential Funding Sources
Historic Preservation Fund, Vermont Division for Historic Preservation

Trail Brochure(s) – An interpretive brochure would be prepared to interpret the mine, its historic resources, environmental restoration, and the surrounding landscape. The brochure would include an overview of the history and significance of the mine, and actions taken to restore the environmental health of the site. The trail brochure would reference other mine-related interpretation, both on-site and off-site. If numbered bollards are installed at locations along the interpretive trails, the trail brochure should be keyed to the numbering system. If interpretive waysides are installed as trailside exhibits, the brochure could reference and coordinate the interpretation offered.

The trail brochure would include a map of the trails and replace the trail map described above. The brochure would be available at trailheads, visitor centers, and other high-traffic areas of the community. In the early stages, the brochure could be simple and

inexpensive. The word processing and graphic capabilities of most personal computers can be used to develop the layout, allowing a volunteer with graphic design skills to produce the brochure. Volunteers could gather the information and images. The main cost would be for printing, if such services are not donated. Over time, it would be necessary to produce a higher quality brochure, using a historian and graphic designer.

Cost estimate
Basic: $1,000 for basic layout and 5,000 black and white photocopies
Advanced: $3,000 for advanced layout and 5,000 color prints, plus additional expense for any original artwork or photography

Potential Funding Sources
Historic Preservation Fund, Vermont Division for Historic Preservation
Sustainable Future Fund, The Vermont Community Foundation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants

Guided Tours – Guided tours of the site would be offered by trained volunteer guides under the supervision and coordination of an authorized management entity. Tours might be limited or quite extensive, depending upon the interests and objectives of the attendees. Residents, local visitors, students, scholars, history buffs, environmental students, trail enthusiasts, scouts, and camp groups are all possible audiences. Tours for Elderhostel programs could also be developed. Tours might be educational or recreational in their emphasis.

Cost estimate
Administrative time to organize and train volunteer tour guides. Administrative time could be donated by volunteers.

Potential Funding Sources
Historic Preservation Fund, Vermont Division for Historic Preservation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants

History of the Elizabeth Mine – A professional-quality history of the Elizabeth Mine would be written and published. The publication would be targeted for the public interested in history. It would be engagingly written and well-illustrated with photographs, drawings, and maps. A local or regional historian would be retained to write

the history under the guidance of partnering educational institutions and the management entity. The publication would be funded through grants and other sources. The research used for the history would be made available for further study and development.

Cost estimate
$25,000 to retain a historian/author. Additional funding might be needed to underwrite publication expenses.

Potential Funding Source
Historic Preservation Fund, Vermont Division for Historic Preservation

Mine Guidebook – As a companion to the history of the Elizabeth Mine, a guidebook would be prepared to focus on the historic resources and landscape features. The guidebook would be targeted for use by students, scholars, and individuals with a strong interest in history and landscape. Special emphasis would be placed on resources and landscape features that can be accessed or viewed from the proposed trail network. The guidebook would be keyed to the trailside interpretive exhibits.

Cost estimate
$25,000 to retain an author, plus the cost of original artwork, photography, and graphics. Additional funding might be needed to underwrite publication expenses.

Potential Funding Sources
Historic Preservation Fund, Vermont Division for Historic Preservation

Research Projects – Current research and educational projects involving the mine site would continue and are strongly encouraged. A volunteer group would facilitate such projects, assisting teachers and educational institutions as necessary. Primary goals would be to foster long-term relationships with school districts, colleges, universities, and other research and education entities, and to raise the level of scholarship.

Cost estimate
Administrative time to coordinate research projects. Such time could be donated. Depending upon the extent of research, a paid staff person might provide the necessary administrative support.

Potential Funding Sources
Vermont Watershed Grants, Vermont Agency of Natural Resources
National Science Foundation

Educational Outreach – In partnership with the research and educational entities undertaking the projects described above, efforts would be made to use educational outreach to disseminate the results. This would be achieved through public presentations, lectures, websites, publications, and other means as appropriate.

Cost estimate
Staff time: $12,500 to $25,000, for part- or full-time education coordinator

Potential Funding Sources
Vermont Watershed Grants, Vermont Agency of Natural Resources
Johanna Favrot Fund, National Trust for Historic Preservation - Northeast Regional Office
Humanities Grants, Vermont Council on the Humanities
Sustainable Future Fund, The Vermont Community Foundation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants

Curricula Development – Using the success of the Newton School project as a starting point, curricula would be developed for regional school districts. It would incorporate the mine into the study of history, the environment, and the sciences. Collaboration might be sought in the curricula development from entities such as the Montshire Museum. The curricula would focus on specific educational goals of the school districts using the mine site and its resources for case study. Similar efforts by regional colleges and universities to develop college-level curricula would be encouraged.

Cost estimate
Staff time: $12,500 to $25,000, part- or full-time position, would be undertaken by education coordinator described above

Potential Funding Sources
Sustainable Future Fund, The Vermont Community Foundation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants

Website – A high-quality website would be developed that presents interpretation of the mine; information about environmental, historical, and cultural issues related to the mine; curricula for

teachers and students; and information about events. The website would outline the historical context and significance of the mine and present schematic, interactive depictions of the mining processes that have been used on-site. It could also present a virtual tour of the mine shafts, depicting the lives and experiences of mine workers. This project would build on work undertaken by Dartmouth University for the current Elizabeth Mine website. The website would describe the environmental impacts of the mine and steps taken to restore the health of the area, including GPS overlays of impacted and restored areas. A computer kiosk in the interpretive facility at the mine would make the website available on-site. The costs presented below are based on out-sourcing the preparation of a website. A very basic website could be developed using current PC software at a much reduced cost if the expertise is available among volunteers.

Cost estimate
Basic: $5,000 for basic design and structure, plus hosting and maintenance fees
Advanced: $10,000 to $20,000, depending upon the degree of interactivity and quantity of content

Potential Funding Sources
Historic Preservation Fund, Vermont Division for Historic Preservation
Sustainable Future Fund, The Vermont Community Foundation
Wellborn Ecology Fund, Upper Valley Community Foundation Grants

Video – A high-quality video would be prepared, documenting the history and significance of the mine. It would be intended primarily for educational use, but should be of interest to the general public. A shortened version of the video would be used at the on-site interpretive facility to help orient visitors to the site. Such a project is underway.

Cost estimate
Video production: $70,000 to $300,000, plus the cost of content development, casting, location usage, and other variables

Potential Funding Sources
EPA – as a component of the proposed mitigation (potentially)
Historic Preservation Fund, Vermont Division for Historic Preservation

Preservation Options

Recordation – As part of the ongoing research program, existing buildings, site resources, and landscape features would be documented and recorded to the standards of the Historic American Engineering Record, a division of the National Park Service responsible for documenting historically significant industrial and engineering sites and machinery. Recordation would include drawings, photo-documentation, and written narratives for each resource. A long-term program of archeological research of the site would be developed and initiated. HAER operates a Summer Program in which students are sent to a site to document the resources and features. The historical significance of the Elizabeth Mine and the level of threat facing its resources might make it a candidate for that program. If this is not feasible, then professional photographers and drafters could be retained to document the mine resources using the HAER guidelines. Lacking funds for this, volunteers could be used. The estimate below is for hiring professionals.

Recordation also includes the potential recovery of archeological and historic information through archeological investigations and historic research prior to destruction of a particular site or feature by proposed construction. Some of this research is currently being conducted.

Cost estimate

For main buildings: Approximately $30,000 for large-format photography on archival paper; $60,000 to $70,000 for measured drawings. The cost of historical research and archeological investigations would depend upon how much more research is needed following the completion of current EPA reports.

Potential Funding Sources

EPA – as a component of the proposed mitigation (potentially)
Historic Preservation Fund, Vermont Division for Historic Preservation
Field Services Program – Project Development Grants, Preservation Trust of Vermont /National Trust for Historic Preservation
Municipal Planning Grant Program, Vermont Department of Housing and Community Affairs

Building Stabilization – A stabilization program would be developed to preserve existing buildings. Buildings that remain unused would be mothballed with special attention given to water infiltration. A twice-

yearly survey and monitoring program would be established. All work would be undertaken with professional guidance.

Buildings that have deteriorated past the point of stabilization and preservation, such as the Flotation Mill Building, the Crushing Plant, and the Thickener and Dryer Building would be prioritized for recordation and fenced off for safety reasons. A program of selective demolition would be established for these structures so as to remove dangerous deteriorated elements, salvage portions of the building fabric, and allow stable portions of the buildings to stand as long as possible.

Cost estimate
To be determined at time of implementation based upon prioritization and a building-by-building analysis.

Potential Funding Sources
Preservation Grants, Preservation Trust of Vermont

Adaptive Re-Use of Mine Buildings – Appropriate uses would be sought for the remaining mine buildings. Rehabilitation of buildings for adaptive re-use will be undertaken in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* with the goal of preserving their character and historical integrity.

Cost estimate
To be determined at time of implementation

Potential Funding Sources
Rehabilitation Investment Tax Credit, Vermont Division for Historic Preservation
Preservation Grants, Preservation Trust of Vermont
National Preservation Loan Fund, National Trust for Historic Preservation
Save America's Treasures, National Park Service

Municipal Use Options

Town Garage – To accommodate the expanding needs of Strafford for municipal services, several structures among the 1940s-era complex would be rehabilitated for uses such as the storage and maintenance of road equipment and offices. The selection of buildings and the program of use should complement, and not interfere with, other uses to be developed for the site. Rehabilitation of the buildings for

adaptive re-use would be undertaken in accordance with the *Secretary of the Interior's Standards for Treatment of Historic Properties.*

Cost estimate
To be determined at time of implementation

Potential Funding Sources
Town of Strafford

Stump Dump – A stump dump area and composting facility would be developed on-site for limited public use. It would be open during business hours and supervised by town employees. Such an area might be located on the south end of Tailings Pile 2 to avoid restricting the use of other portions of the site. The facility would be open to residents of Strafford, Thetford, and Norwich.

Cost estimate
To be determined at time of implementation

Potential Funding Sources
Town of Strafford

Chapter 5
Implementation

The menu of re-use options outlined in Chapter 4 provides a general list of actions that can be undertaken or fostered in support of returning uses to the Elizabeth Mine site. The implementation of these actions will depend upon the collective efforts, abilities, and interests of individuals, existing groups, and the newly formed Orange County Copper Mining District Coalition. The coalition is a regional organization formed to coordinate activities and implement site re-use options among the three mines. For the purposes of this chapter, it is assumed that the coalition, in partnership with a wide variety of other public- and private-sector partners, will be primarily responsible for implementing the options described in the *Site Re-Use Plan.* In support of this, recommendations are presented below for the consideration of the coalition. These recommendations focus on the management structure and organizational capacity that are likely to be needed to implement the options. These recommendations are offered to aid planning efforts that may be undertaken by the coalition, and are not binding on the coalition or any other organization, group, or individual.

Implicit in the list of re-use options is an understanding that multiple levels of effort are possible. Four re-use scenarios are described below, with each relating to an increase in the levels of effort that would be required to undertake these options. Accompanying the discussions for each scenario is a discussion about the size and description of the organization that will be needed to support that level of activity.

It is recommended that either Scenario 2 or 3 is an appropriate level of activity given the opportunities and issues that are present and given the strong public support for re-using the mine. The level of public support

suggests that Scenario 1 does not include a satisfactory level of re-use: it may include too few re-use options, especially considering the many opportunities provided by the mine site. At the same time, Scenario 4 may include too many options, many of which are complex and require a high level of coordination, planning, fundraising, and activities over an extended period of time. Scenario 4 may be a long-term target for activities. In the shorter term, Scenarios 2 and 3 are achievable, though each requires a significant amount of dedication and effort. These recommended scenarios are not intended to preclude the "menu" approach described in the previous section. Each scenario includes a specific list of actions, but any action can be undertaken at any time, irrespective of the scenario that is targeted, when the management entity is capable. Many possible combinations of re-use options are possible depending upon the interest, support, and capacity of the coalition and its partners.. The scenarios should be viewed as approaches for designing a program of activity..

Site Re-Use Without EPA Remediation and Mitigation

Currently, the EPA has not appropriated funding for remediation and mitigation. This will not greatly affect short-term re-use recommendations that are not dependent on EPA funding or the primary issues identified in Chapter 3. Many of the other options are dependent upon the actions of the EPA and the resolution of the primary issues. These options, such as the construction of the trails, trailside exhibits, interpretive facility, interpretive park, and recreation fields, are currently on indefinite hold.

The lack of EPA funding creates two problems that require creative solutions: (1) obtaining public access to the land and resources without the release of clean-up liability that will result from remediation, and (2) obtaining mitigation funding. Until the landowners are released from clean-up liability, they are not expected to voluntarily sell, donate, or otherwise transfer property ownership for public access and use. During this time, the coalition should focus on off-site re-use options while working with landowners to find creative solutions that will allow for public interaction with the primary mine site resources. Without mitigation funding, the nonprofit will have to raise funds for implementation measures.

Development of an Evolving Management Structure

Previously, activities that were associated with the mine—research, guided tours, and the like—were undertaken in a largely ad hoc fashion by a variety of organizations and individuals. The creation of the coalition presents an opportunity for a new level of coordination for planning educational,

interpretive, and stewardship activities. With increases in the number, intensity, and complexity of activities, the coalition will need to expand its capabilities in kind, evolving to suit the needs of the mine.

Regional Nonprofit Organization

Currently the coalition does not have nonprofit status as a 501(c)3 corporation. The coalition should seek nonprofit status, which will be necessary for extensive fundraising, entering contractual agreements, and addressing liability issues related to public use and safety. In planning for a stronger, more effective organization, it is recommended that the coalition consider undertaking the following steps:

- Establish a firm set of goals and objectives;
- Establish protocols for meeting times, dates, agenda preparation, and other related matters;
- Delineate the terms, benefits, and responsibilities of membership;
- Explore the potential support that may be provided to and by local and regional partners;
- Develop a work plan that identifies activities to be undertaken annually using the options and scenarios of the *Site Re-Use Plan* as a guide;
- Establish a committee structure for implementing activities of the work plan; and
- Develop a list of priority actions that are realistic and achievable and that will demonstrate the abilities of the organization and build momentum for future, more complex activities

Nonprofit management structures consist of an executive body, such as a board of directors, that is the decision-making body for the organization. The board may be supported and directed by an executive committee that provides input on decisions and policies. Board members should possess a wide range of skills and areas of expertise, including but not limited to, history, government, ecology, law, recreation, fundraising, education, and marketing. Board members should also represent the different areas from within the region. The typical board has between 15 and 25 members. Board members should ideally include representatives from the Strafford, Thetford, and West Fairlee Historical Societies, as well as local elected officials, state agencies, educators, landowners, historians, bankers, lawyers, environmentalists, natural resource and recreation staff, and community members. It should be emphasized that this is a working board with

members that are expected to participate actively and support the organization's mission and goals.

Within the board structure, a set of committees are charged with specific tasks, such as development, interpretation and education, preservation and resource enhancement, grants, special events, and media and public relations. Committees are usually chaired by a board member and should include community volunteers. The board, committee members, and volunteers are responsible for implementing activities and projects. The organization will have no paid staff initially and will rely heavily on partnering with other organizations. When staff members are ultimately hired, they will support the board, committees, and volunteers, and oversee day-to-day operations. Staff, however, do not replace board-level responsibilities. Of necessity, all projects should be implemented by volunteers, except those requiring professional expertise and labor, which should be retained on a contract basis. Resource groups such as the Center for Nonprofit Management have information that could help guide the development of committees for the nonprofit.

In time the coalition will be responsible for undertaking a wide variety of tasks simultaneously at each of the Orange County mines. It is recommended that one committee be formed to oversee the needs and programming for each of the Orange County mines. The committees will report to the board. The board will help coordinate the activities between the committees. A citizens advisory committee may also be formed to provide additional oversight and a direct connection to the communities. The task-oriented committees should work cooperatively for the mutual benefit of all of the mines. Many of the re-use options presented in Chapter 4 will be applicable to the other mines sites and can be implemented simultaneously at multiple locations.

Recommended Responsibilities of the Orange County Copper Mining District Coalition

Undertaking the options of the *Site Re-Use Plan* will require a number of responsibilities to which the coalition must attend. The following discussion introduces these responsibilities, but many more exist that must also be understood and maintained.

Consultations with Landowners

To undertake many of the tasks described in the *Site Re-Use Plan,* one of the most important ongoing responsibilities for the coalition will be consultation and communication with landowners. The coalition will be responsible for maintaining cordial relationships with the landowners for the mutual benefit

of all parties. This is especially important prior to the resolution of remediation issues. To date, landowners have been cooperative in permitting research and on-site tours. To allow for regularly scheduled tours or other on-site educational events, the coalition and respective landowners should consider entering into agreements that include an outline of responsibilities, guidelines and procedures for activities, and waivers releasing the landowners from reasonable liability. All coalition members and program participants will need to sign waivers of liability.

Fundraising

Fundraising is the lifeline of most nonprofit organizations, providing almost all of the funding for operations, programs, maintenance, and capital projects. The coalition should develop a solid fundraising program with balanced income sources (see below). Even with EPA funding, the organization will need some level of income for other projects. Board members and volunteers should contribute financially to the coalition to the best of their ability. Other funding sources, such as grants, special events, in-kind contributions of services and goods, underwriting support, and membership programs should be developed. For example, special Orange County mine tours and events could raise funds and increase awareness with in-kind contributions and/or underwriting support for advertising, printing, refreshments, and travel expenses. This type of creative, grassroots funding approach could be used to support speaker honoraria, newsletters, brochures, annual meetings, conferences, websites, and membership programs. Chapter 7 provides a list of local, regional, state, and national funding sources.

The *Site Re-Use Plan* can be used as a development tool to demonstrate careful re-use planning and to leverage funding support. The coalition should consider developing a case statement that briefly describes the organization, the planning process, how the proposed projects support short- and long-term goals, how the project fits into the larger implementation plan, the specific funding need, and how the donor or grantor will be acknowledged. The case statement should be the basis for grant applications, requests for gifts, in-kind contributions, underwriting support, annual appeals, and events. Most grants require matching funds; it is possible in certain grant programs to use other grants as match. It is not anticipated that the towns will be able to provide direct funding, but they may be able to help support the coalition through staff, meeting space, supplies, and/or existing programs and media outlets.

Partnership Opportunities

The coalition should take full advantage of partnership opportunities in the public, private, and nonprofit sectors. The Strafford Historical Society will be

a key player based on its support for efforts to study, understand, and communicate the history of the mine. The intellectual resources of the historical society will be invaluable in future work.

Likewise, Dartmouth College has invested financial and intellectual resources in the mine over the years. This close relationship with the college's research and educational activities should be fostered. The Montshire Museum of Science is another potential partner with expertise in interpretation, exhibit development, educational programming, and nonprofit management.

The Upper Valley Land Trust can provide guidance in the development of land use agreements with mine landowners as well as landscape maintenance. The Vermont Division for Historic Preservation is interested in the enhancement of the mine and development of the Orange County Copper Mining District. As a funding source, the division should be an important partner. The Vermont Agency of Natural Resources is also an important partner for recreational and conservation. The Justin Smith Morrill Homestead State Historic Site possesses expertise in interpretation and historic-property management that should be useful. Offering such partners seats on the board or on working committees is an ideal way to get them involved.

Re-Use Scenarios

With input from members and partners, the coalition will determine which re-use options to undertake. To inform that decision-making process, the following four scenarios also provide outlines for what types of management structures will be needed for each level of activity. The discussions about management structures are presented as recommendations for the coalition. Scenarios 2 and 3 are recommended. Please note, however, that all scenarios are predicated on EPA remediation resolution of clean-up liability, land ownership, and public access issues. In the absence of EPA-led remediation, more creative approaches will be necessary.

Scenario 1: No Additional Site Re-Use

No additional site re-use is planned in Scenario 1. Existing efforts will continue by organizations, such as the Orange County Copper Mining District Coalition, the Strafford, Thetford, and West Fairlee Historical Societies, the Elizabeth Mine Study Group, and other interested groups and citizens.

Scenario 2: Trail Loop with Interpretation

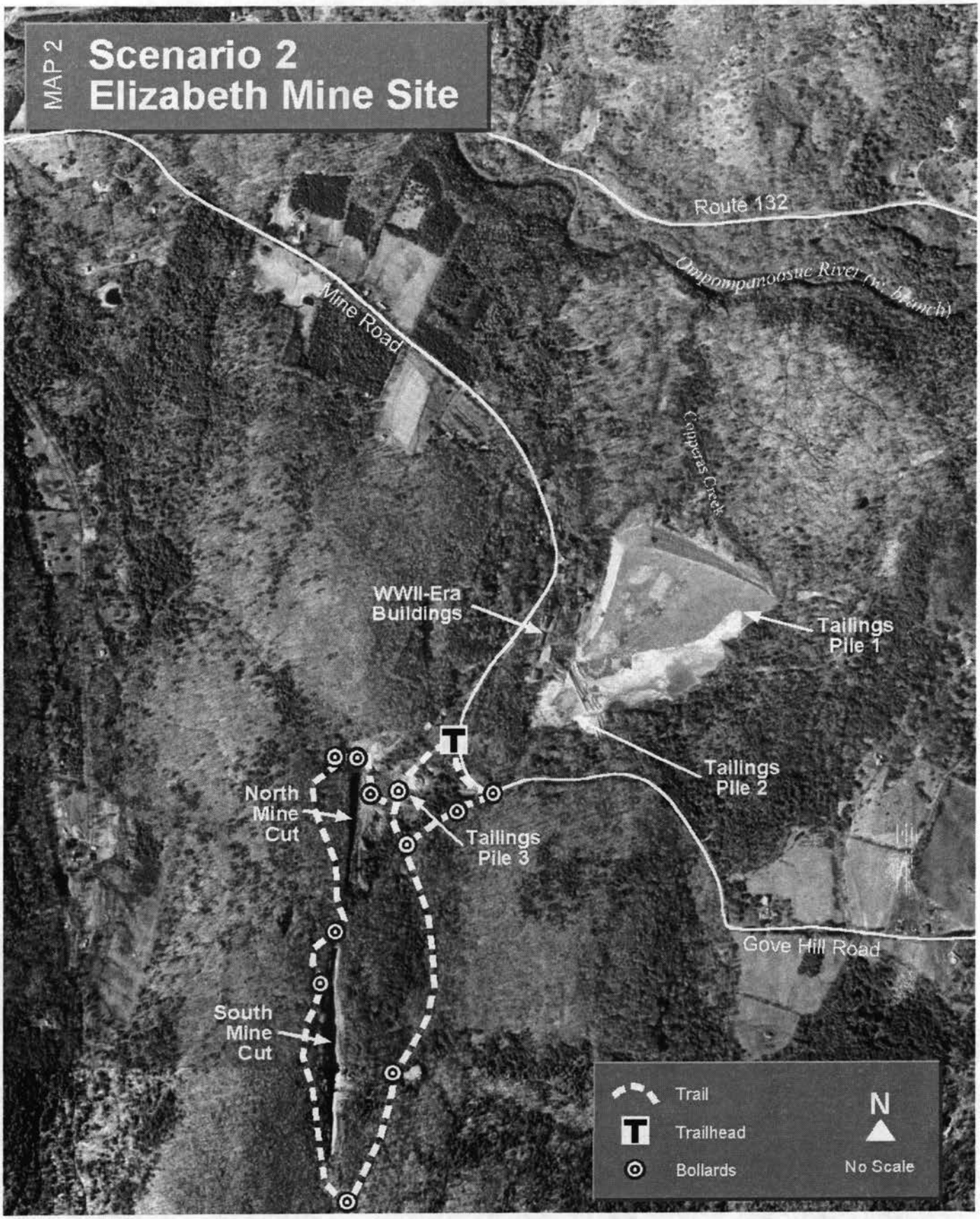
Scenario 2 presents an active, but limited approach to site redevelopment and re-use. Site work will consist of the construction of a short trail loop that connects Mine Road, Tailings Pile 3, the two open cuts, and the ruins in the ravine south of Mine Road (Map 2). A trailhead exhibit in the form of a free-standing kiosk will be installed along with bollards at key interpretive sites along the trail. The bollards will be numbered and keyed to an interpretive brochure that will be made available to the public. General recordation of significant historic resources will be undertaken. Limited stabilization will be undertaken on buildings of significant value. Prioritization of stabilization measures will balance the need to stabilize the most significant resources with the ability to raise the funds and gather the skills needed to undertake such work. It is expected, however, that a number of significant buildings may be lost. Educational programs will be developed that will feature guided tours, outreach programs, and curricula development for schools. The brochure and website will be developed providing basic interpretation about the mine site and its significance. Research projects will be encouraged and the production of publications will be supported. A video will be produced. Most of the educational programs, aside from guided tours, will be prepared for presentation off-site.

Management: Small-Scale Organization

To undertake the level of effort represented in Scenario 2 the coalition will need to incorporate and obtain nonprofit status. The coalition will coordinate existing activities, implement planning for modest projects, prepare grant applications, and undertake limited small-scale projects. Moreover, the coalition will help build momentum and awareness about the mine. Partnerships will be important for implementing this level of activity.

Resolution of Primary Issues

Though a variety of options existing for resolving the issue of public access to the site, the preferable solution is the voluntary sale or donation of easements on trail lands to the coalition or some other appropriate organization. All other use of private land by the coalition and the public will be undertaken with the voluntary written permission of landowners. All features and resources that pose potential threats to human health and safety will be cordoned off to an appropriate degree. This includes, but is not limited to, the open cuts, the World War II-era buildings, and the Tailings Piles.



Aerial photograph by USGS. Map by John Milner Associates, Inc.

Potential Implementation

A primary concern for the coalition will be building a sustainable and effective organization. The organization will also focus on building mutually beneficial relationships with the landowners, fundraising, coordinating the efforts of volunteers, and expanding its membership.

Recordation of specific buildings should be one of the first projects undertaken because several of the most significant historic resources are in danger of imminent collapse. An application should be made to the Historic American Engineering Record (HAER) Summer Program. For the program teams of students (often graduate students) are sent to historic places to document the resources, sites, and machinery with photographs and measured and interpretive drawings. The team also undertakes extensive background research. Considering its significance and the degree of threat, the Elizabeth Mine could qualify for participation. Support from the Vermont Division of Historic Preservation should be sought as part of the application. If participation in the program cannot be secured, other qualified photographers and draftsmen can be retained to use HAER guidelines for recordation. If this option is also not available, volunteers using the guidelines should be sent into the structures, with permission and supervision, to take photographs and record key features.

Off-site projects will also be undertaken, or at least begun, in the short term, such as the ongoing and future research projects, educational outreach projects, curricula development, website, and video. Limited on-site projects such as the guided tours will continue to be developed and enhanced over time. Any on-site activity will require the voluntary permission of the landowners. Other projects,

The construction of the trail loop, the most complex project in Scenario 2, essentially consists of two main components: securing the right to use the land for the trail and constructing the trail. Such construction, though, cannot be undertaken until site remediation has been completed. As discussed above, the preferable approach for such a project is to secure access through the purchase or donation of easements. Leases may also be used depending upon the interests of the property owners. Most potential funding sources will probably require some form of property interest in the trail corridor. The town of Strafford could be a first option for securing funding, or at least the seed funding, and it could also serve as the holder of an easement. If the town is unable to provide help, the coalition should consider working with a land conservation entity such as the Upper Valley Land Trust. This organization can help facilitate the process, including discussions with the landowners, tax planning, helping with appraisers and lawyers, and identifying funding sources. The UVLT prefers not to hold

easements, however. Though the town may not be able to provide funding or planning, it may be willing to hold the easement once it has been secured. The section on Potential Partners provides a more detailed discussion of the UVLT and the services they provide.

The construction of the trail includes planning, fundraising, and the labor of constructing the trail corridor. A strong partner in this effort will be the Vermont Youth Conservation Corps. This organization can help plan the trail and help identify funding sources for their services. Planning should begin at least a year before construction is anticipated. This allows time for the preparation of grant applications, trail designs, the identification of suppliers of materials (donations preferred), and the scheduling of workers. The section on Potential Partners provides a more detailed discussion of this organization and the service they provide.

Concurrent with the planning for the trail will be the planning and production of the trail brochure. Grants and other sources of funding will be needed plus the help of volunteers or staff. Donations should be sought for the paper and the services for designing and printing the brochure. A listing of potential funding sources is provided a subsequent section of the *Site Re-Use Plan.*

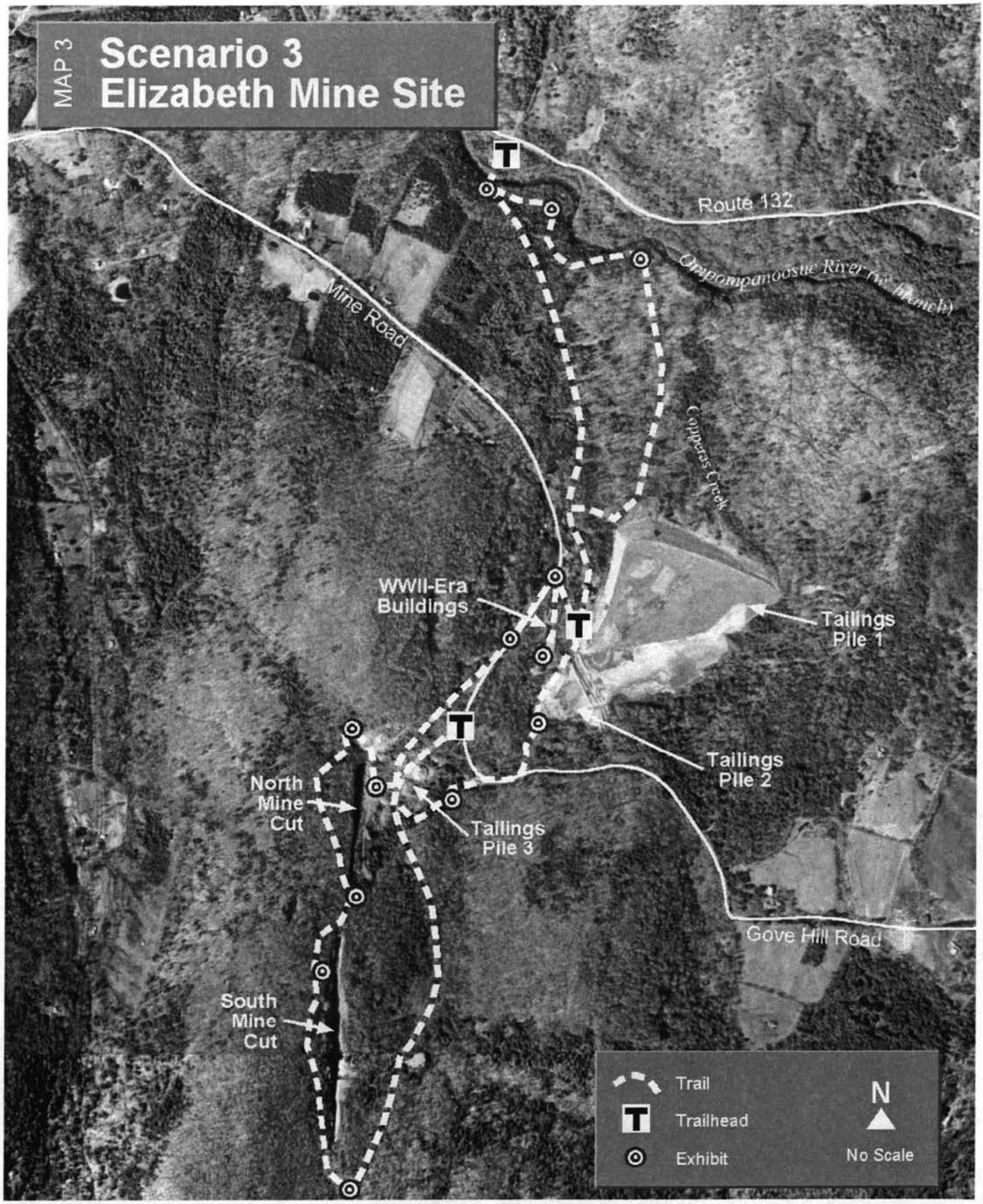
Scenario 2 Projects	
Recreation Trail Loop	*Interpretation* Off-Site Exhibit(s) Trailhead Exhibit Kiosk Trailside Bollards and Brochure
Preservation Recordation Building Stabilization	*Education* Trail Brochure Guided Tours Research Projects Educational Outreach Curricula Development Website Video

Scenario 3: Trail Network and Interpretive Pavilions

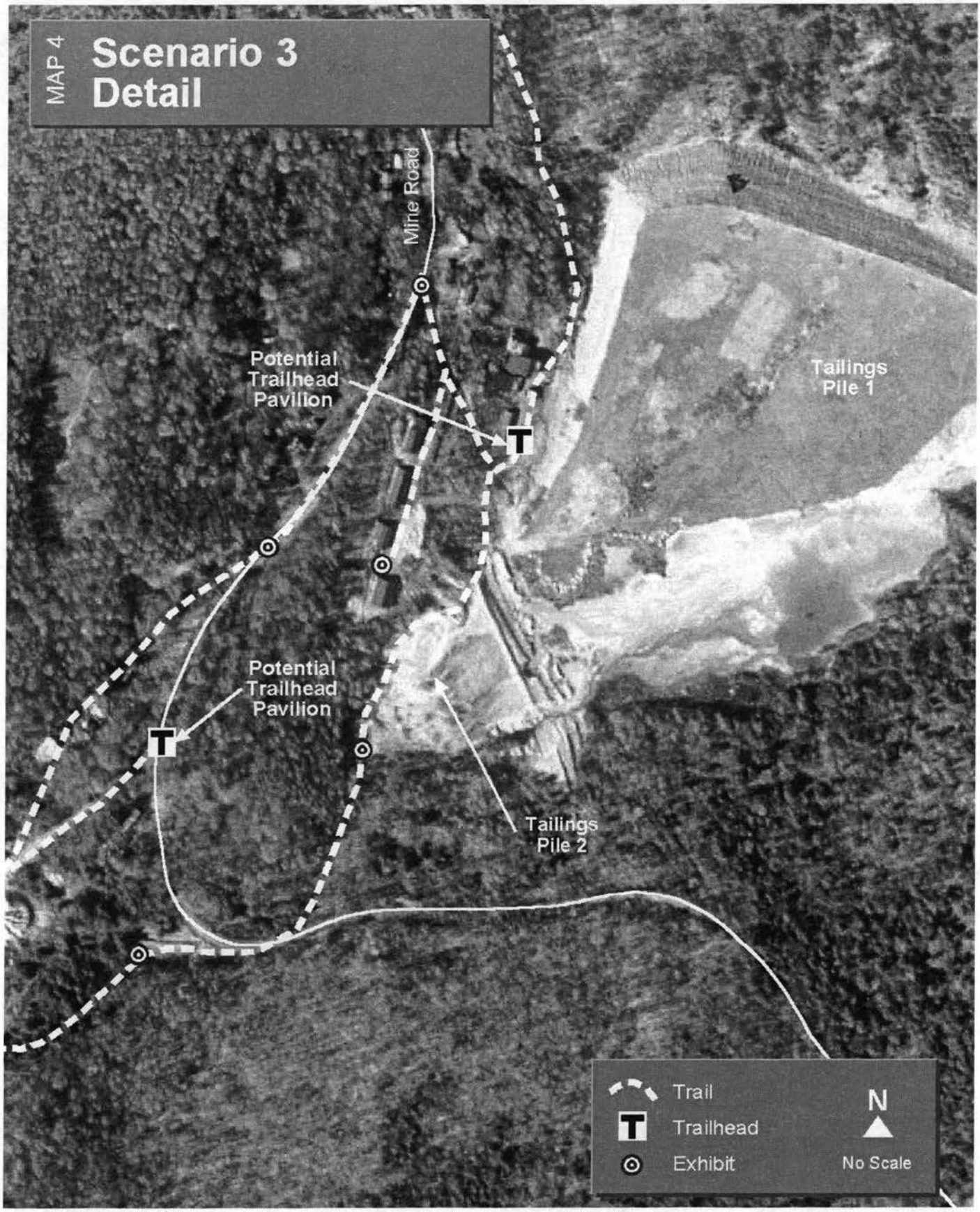
Scenario 3 involves a thorough presentation of interpretation on-site with a network of interpretive, recreational trails and a small pavilion (Map 3). Compared to Scenario 2, these activities will require significantly more planning, fundraising, and coordination among partners. The interpretation and education programs will be expanded. A major addition is the publication of a history of the Elizabeth Mine. Recordation of failing buildings will be more extensive, and the degree of stabilization will be increased. To manage this higher level of activity, the capabilities of the coalition will need to be greater than was needed for Scenario 2.

The trail network will have three principal trailheads, each consisting of a pavilion outfitted with interpretative exhibits and trail information. One pavilion will be located on Mine Road at the head of a collection of trails that is essentially the trail loop discussed above, though there is an additional section along Copperas Road that connects to the WWII-era complex of buildings (Map 4). Another pavilion will be constructed within this complex in the vicinity of the Mine Garage. This location affords views of the tailings piles and most of the other buildings, including the remains of the Flotation Mill and Thickener and Drying Building. Access will also be provided to the grounds among the nearby buildings, but no access will be provided into them. This pavilion will serve as the trailhead for a collection of trails that follow the 1830s road northward to the ruins of the bridge abutments on the river, eastward to Furnace Flat, eastward to the site of the 1940s Pump house, and back up the trailhead. At the bridge abutments, a new pedestrian bridge will be constructed to provide access to the 1850s-1870s furnace area on the north side of the river. The third pavilion will be located here, along with a parking area access from Route 132. Connecting the WWII-era buildings with the trails around the cuts will be another trail that will pass along Tailings Pile 2 uphill to Mine Road. Instead of bollards, interpretive exhibits will be installed along the trail that provide detailed interpretation of nearby sites and features.

Public access will be limited to the trail network and to the grounds of the WWII-era buildings. At each trailhead the pavilions will house interpretive and trail information panels. Interpretive signage would be installed along the trail at key locations. Trail amenities will be limited. Observation decks may be installed at each of the cuts. The cuts themselves will be fenced off. Education programs would be developed, focusing primarily on audiences off-site.



Aerial photograph by USGS. Map by John Milner Associates, Inc.



Aerial photograph by USGS. Map by John Milner Associates, Inc.

Management: Medium-Scale Organization

To undertake the level of activity in Scenario 3, the coalition will need to expand its management capabilities so that is can coordinate and manage more complex programs and activities. Though it will still be a volunteer-based organization, one or more paid staff positions, starting with an executive director, will be needed to manage the organization and its work. A large board of active people possessing a variety of skills will be needed. Even with limited staff, most of the work will be undertaken by volunteers. Because the work load will be greater, the task of managing volunteers will be greater, as well. For projects requiring expertise or specialized skills, professionals will be retained on a contract basis. A major task for the executive director and board will be fundraising.

Resolution of Primary Issues

Public access to the grounds of the WWII-era buildings will be provided through voluntary agreements with the property owners. Purchase of buildings and grounds in this area is not necessary in this scenario. The buildings will be sealed against unauthorized entry, and all equipment and site features that threaten health and safety will be cordoned off with fences and appropriate signage. As in Scenario 2, the open cuts and other site features will receive similar, appropriate treatment. The public will not have access to buildings or fenced areas without the voluntary permission of the property owners.

Public access to the land through which the trail network passes will be secured through easements (purchased or donated) on either the trail corridors or for the entire parcels generally. The parcels could be purchased in fee simple for the purposes of establishing trails and allowing general access through those areas. Additionally, provisions will be made for parking at each of the trailhead pavilions.

With this scenario, it is possible that one or more of the WWII-era buildings could be used as the Strafford Town Garage. The decision to relocate the garage into a rehabilitated mine building will be made by the town, and the coalition will plan to accommodate this potential re-use option. Its location will have an impact on programming because of the traffic generated, but one of the main benefits for this recommendation is that it will add a new use to the site, helping to provide security and focusing attention on the surrounding buildings and features.

Potential Implementation

As discussed in Scenario 2, recordation of buildings before they collapse is a major priority and should be undertaken as soon as possible either by volunteers using HAER guidelines, hiring professional photographers, or participating in the HAER Summer Program.

Fundraising will be the central concern for implementing these projects. The projects will be expensive and phased in over years. A phased approach will also be necessary to purchase the land or easements needed for the trail network. The three trailhead pavilions will be installed in the first phase. This will put an early presence in the landscape. The pavilions will feature introductory interpretation on the mine. Trail information can be installed when the trails are constructed. Parking and picnic areas will be constructed with the pavilions. Next, the trails that lead up to the cuts will be constructed, and then those that connect to the WWII-era buildings and the tailings piles. The trails that lead down to the river and back will be the next portions. The last trail portion to be constructed will be the pedestrian bridge across the river connecting the trails with the trailhead pavilion off of Route 132.

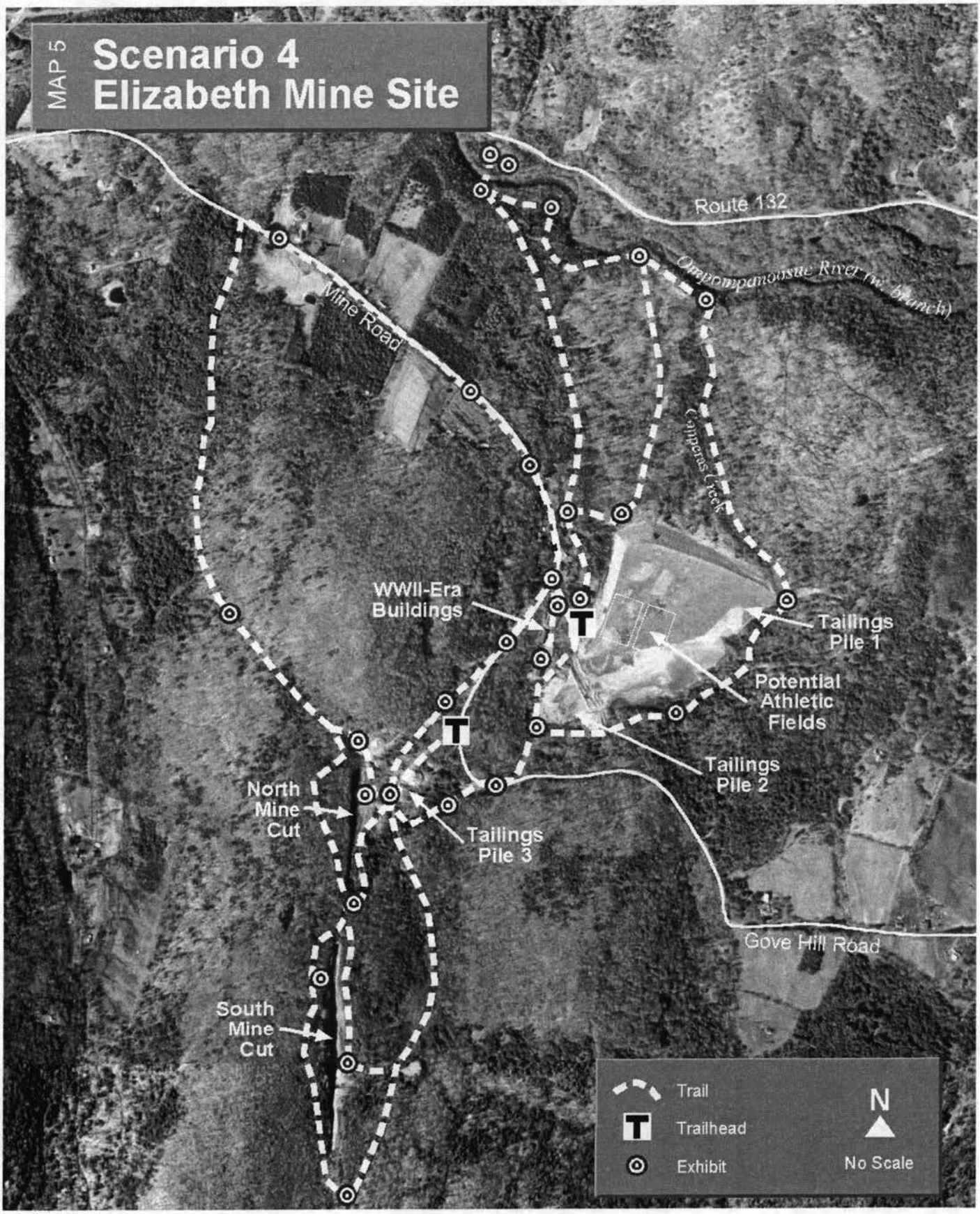
To guide the development of interpretive materials (exhibits, signs, brochures, websites, and other publications) an interpretive plan will be developed outlining an interpretive presentation focusing on the stories to be told and the media that will be used to tell them. This plan will coordinate the interpretation among the materials so that each piece fits with the others to create a comprehensive and engaging interpretive experience on and off the site. Following the construction of the trails will be the development, fabrication, and installation of trailside exhibits. Publications, the website, and any off-site exhibits will be developed prior to the opening of trails. Once the trails are opened, special trail brochures will be developed to complement the trailside exhibits.

The schedule of stabilization activities will be dependent on available funding, securing adequate expertise, and gaining the voluntary participation of building owners. It may be necessary for the coalition or another appropriate entity to own one or more of the significant buildings to ensure its preservation. All activity that will be undertaken that involves the public use of private property or the transfer of ownership of property will based on the voluntarily participation of property owners.

Scenario 3 Projects	
Recreation Trail Network	*Interpretation* Off-Site Exhibit(s) Trailhead Exhibit Pavilions Trailside Interpretive Exhibits
Preservation Recordation Limited Building Stabilization	*Education* Trail Brochure Guided Tours History of the Elizabeth Mine Research Projects Educational Outreach Curricula Development Website Video
Municipal Uses Town Garage	

Scenario 4: Extensive Trail Network, Interpretive Facility, and Additional Recreational Use

Scenario 4 involves the most extensive degree of re-use, programming, and redevelopment of the site. This degree of activity will be expensive and complex, and is a possibility over the long term, but not necessarily in the short term. This scenario includes the development and construction of an interpretive park at Tailings Pile 3, an interpretive facility, an extensive trail network with on-site interpretation, including multiple trailheads and trailside interpretive signage (Map 5), and recreational facilities on Tailings Pile 1. Parking and support facilities will be required. A primary goal will be to create a new and unique place to tell the story of the mine site and to link all areas of the mine site, from the Old South Mine to the West Branch of the Ompompanoosuc River and Furnace Flat. The interpretive park will include interactive, hands-on exhibits on the history, science, and human roles associated with the nineteenth-century use of the area. An interpretive facility will be established in a nearby historic mine structure, such as the mine office, with other buildings rehabilitated for use as the town garage. Special trail features include decks overlooking the open cuts, which will be fenced off for safety, a pedestrian bridge over the river, and a parking facility on the north side of the river.



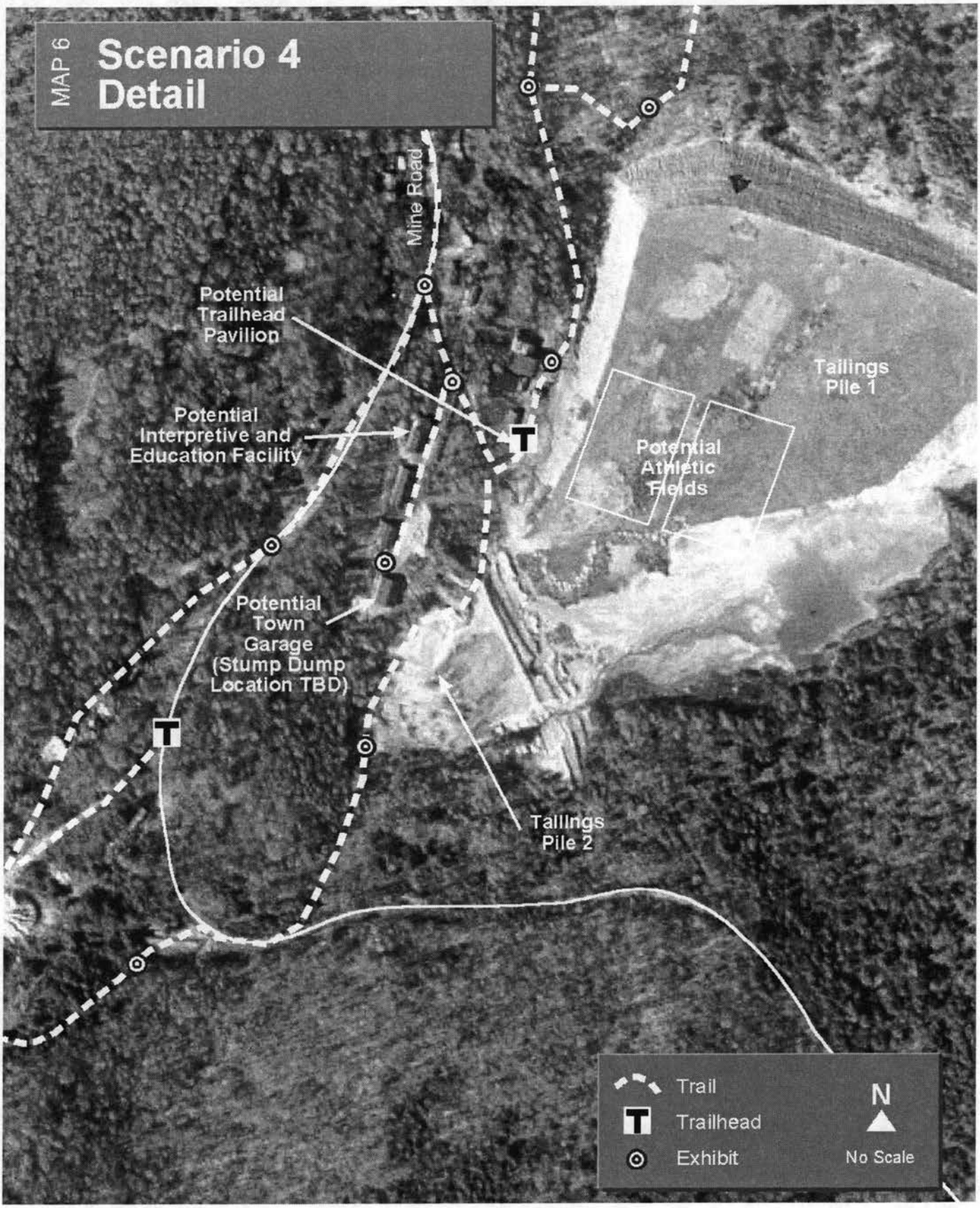
Aerial photograph by USGS. Map by John Milner Associates, Inc.

Once the remediation is complete and the surface of Tailings Pile 1 has been re-graded and seeded, athletic fields, the Discovery Camp, parking areas, and other support facilities can be installed without any detrimental effect on the remediation measures (Map 6). This area can be used for community events and a variety of other activities. Education programming will be implemented as with the other levels, but in this level, the effort will be higher quality and more professional to serve a broad range of audiences at different education levels and age groups. Most, if not all, of the primary standing structures and significant ruins will be stabilized. Several buildings will be rehabilitated and adaptively reused. Each resource and primary landscape feature will be recorded according to HAER standards of documentation. Municipal uses will be incorporated into the overall program of use for the mine site, including a town garage and possibly a stump dump.

Management: Large-Scale Organization

The level of effort in Scenario 4 will require the capabilities of a large-scale nonprofit organization possessing several paid staff positions beyond that of

Scenario 4 Projects	
Recreation Extensive Trail Network Athletic Fields Discovery Camp	*Interpretation* Interpretive Park Interpretive and Educational Facility Off-Site Exhibit(s) Trailhead Exhibit Pavilions Trailside Interpretive Exhibits
Preservation Recordation Building Stabilization Adaptive Re-Use of Mine Buildings	*Education* Trail Brochure Guided Tours History of the Elizabeth Mine Mine Guidebook Research Projects Educational Outreach Curricula Development Website Video
Municipal Uses Town Garage Stump Dump	



Aerial photograph by USGS. Map by John Milner Associates, Inc.

an executive director. These may include an education and interpretation coordinator, a volunteer coordinator, and a development specialist. Extensive fundraising will be needed, and a significant level of participation by regional institutions and local governments. Many volunteers will be needed to support the work of the staff. All property acquisitions (fee simple and easements) or the use of privately owned property will require the voluntary participation of the property owners.

Chapter 6
Potential Project Partners

The redevelopment of the Elizabeth Mine will take the concerted efforts of many people over many years. Most of the work will be undertaken by volunteers: history buffs, trail enthusiasts, educators, and others. Everyone with the interest and energy to participate will be invited to join in and help. Most of the people will be residents of the towns or the surrounding area. Some of the work will be undertaken by consultants, contractors, and other people who possess specialized knowledge and experience. The management of this effort will be discussed following further input from participants in the site re-use planning effort.

In addition to local support, help will be needed from organizations from within and outside of the region. The following organizations have missions to help in efforts like the mine re-use project. Their help should be sought and relationships should be built and maintained.

History-Related Organizations

Strafford Historical Society
Strafford, VT 05072
General number: (802) 765-4321
Contact: E. Gwenda Smith

The Strafford Historical Society is the local repository for the history of Strafford and its surrounding area, and has been actively involved in activities related to the mine for years. Many of the ideas and projects presented in this plan were initially developed by society members. The society has

approximately 175 members and up to 60 active participants. The society will continue to be an active partner in future efforts at the mine.

Thetford Historical Society

P.O. Box 33
Thetford, VT 05074
Contact: Charles Latham, President and Librarian, (802) 785-2068

The Thetford Historical Society is the repository for the history of Thetford, maintaining a library and a collection of historical artifacts. The library contains about 4,000 volumes, 100 linear feet of manuscripts, photographs, portraits, and historic furniture. Other collections include tools, farm implements, vehicles, store and post-office fittings, and local crafts.

West Fairlee Historical Society – Ely Mine

Town Highway 38
South Vershire, VT 05079
Contact: Roger Bailey, (802) 333-4285, *email*: rkbailey@connriver.net

As a companion mine to the Elizabeth Mine, the Ely Mine may provide opportunities for coordinated interpretation and site development that will be mutually beneficial. A program to develop an Orange County Copper Mining Historic District is being drafted that builds upon a partnership between the mines. There is support at the state for such an approach. By working together, the mines can achieve more than if they worked singly or in competition with each other.

Justin Smith Morrill Homestead State Historic Site

Justin Smith Morrill Highway
Strafford, VT 05072
General numbers: (802) 828-3051, in season (802) 765-4484
Website: http://www.dhca.state.vt.us/HistoricSites/html/morrill.html
Contact: John Dumville, *email*: Jdumville@dca.state.vt.us

The Morrill Homestead is the nineteenth century Gothic-Revival-style home designed by U.S. Senator Justin Morrill. A National Historic Landmark, the property is owned by the state. This seventeen-room home contains original furnishings and artifacts of the Morrill family. The homestead hosts a variety of programs that are co-sponsored with other organizations, in particular with other state historic sites. There are opportunities for collaboration with the Elizabeth Mine on future projects. The expertise and knowledge possessed by those working at the site may be beneficial to those working at the mine.

Friends of Morrill Homestead

P.O. Box 98
Strafford, VT 05072
Website: http://www.historicvermont.org/morrill/

The Friends work with the DHP to foster awareness of the life and legacy of Senator Justin Morrill and to support the maintenance and preservation of the Morrill Homestead. A "friends group" similar to this organization may be a model for a management group that could coordinate activity at the mine.

Vermont Historical Society

Vermont History Center
60 Washington Street
Barre, VT 05641-4209
General number: 802) 479-8500
General email: vhs@vhs.state.vt.us
Website: http://www.vermonthistory.org
Contact: Gainor B. Davis, Ph.D., Director

The mission of the Historical Society is to serve the state by collecting artifacts, books, and documents that reflect the state's history. The VHS operates a museum, library, and education center, publishes research about Vermont History, and develops education programs and materials for schools. The VHS will serve as a primary research venue and may be able to provide valuable contacts to aid in the development of interpretation and education projects for the mine.

Marsh-Billings-Rockefeller National Historical Park
Conservation Study Institute
Billings Farm & Museum

54 Elm Street
Woodstock, VT 05091
General number: (802) 457-3368
Website: http://www.nps.gov/mabi/
General email: MABI_Superintendent@nps.gov
Contact: Nora Mitchell, Institute Director, *email*: nora_mitchell@nps.gov

The Conservation Study Institute was established by the National Park Service to enhance leadership in the field of conservation. The institute has three programs: education and training, research, and building and sustaining networks within the conservation community. The Billings Farm & Museum was established in 1983 to continue the farm's working dairy and to interpret rural Vermont life and agricultural history. As the nearest national park, Marsh-Billings-Rockefeller could provide access to the expertise and support

provided by the National Park Service. The future mine group should build a relationship with the park, especially the institute, because mutually beneficial partnerships may be possible considering the conservation issues at the mine and the mine group's future need for help with conservation leadership.

Vermont Division for Historic Preservation

National Life Building, Drawer 20
Montpelier, VT 05620-0501
General number: (802) 828-3211
Website: http://www.historicvermont.org/
Contacts: Giovanna Peebles, State Archeologist, (802) 828-3050; John Dumville, State-Owned Historic Sites and Historic Markers (802) 828-3051; Elsa Gilberton, Regional Administrator, Historic Sites (802) 759-2412; and William Jenney, Regional Administrator, Historic Sites (802) 672-3773

The Division for Historic Preservation (DHP) is the state historic preservation office for Vermont, serving as the central preservation entity for the state. In addition to its own preservation programs, the DHP administers federal programs. The DHP has been a active participant in the mine clean-up efforts and will continue to have an interest in the redevelopment and interpretation of the mine. As a repository of technical and financial support, the DHP can be a source of both short- and long-term support for mine re-use and enhancement projects. The DHP may be especially useful in supporting the recordation efforts and providing guidance and expertise. The DHP likely maintains a list of consultants and contractors who could be retained for mine projects.

Preservation Trust of Vermont

Field Service Program
104 Church St.
Burlington, VT 05401
Website: http://www.ptvermont.org
Contact: Ann Cousins, Field Representative, (802) 434-5014, *email*: ann@ptvermont.org, or Doug Porter, Field Representative, (802) 644-2815, *email*: doug@ptvermont.org

The trust is a private organization created to assist statewide efforts to protect architectural resources. The trust provides assistance to groups and individuals who are involved in historic preservation, undertakes educational programs, holds easements on individual properties, and accepts gifts of property. The Field Service Program, operated in partnership with and the National Trust for Historic Preservation, provides direct technical assistance, awarded on a competitive basis and financial assistance. It should be beneficial to participate in the Field Service Program, but probably not

initially. An appropriate time to apply to participate would be once momentum is developed and participants have been identified to actively work on mine-related projects. The program would perhaps be more useful for providing support in undertaking specific projects.

Montshire Museum of Science

One Montshire Road
Norwich, VT 05055
General number: (802) 649-2200
General email: montshire@montshire.org
Website: http://www.montshire.org

The Montshire Museum of Science is a hands-on museum, featuring exhibits relating to the natural and physical sciences, ecology, and technology. The facility and the 110-acre grounds lie adjacent to the Connecticut River. They present educational programs with a science theme focusing on themes and activities specific to the region for students, teachers, and adults. The museum may be a useful partner by providing technical support in developing exhibits and education programs at the mine. There may also be opportunities to develop mine-related programs for Montshire that dovetail with their existing program agendas. In addition, exhibits could be developed with the museum in which one component is presented at the museum and another at the mine.

Education-related Organizations

Dartmouth College

Center for Environmental Health Sciences
7660 Butler Building, Room 28
Dartmouth College
Hanover, NH 03755
General number: (603) 650-1182
Website: http://www.dartmouth.edu/~cehs/home.htm
Contact: Joshua W. Hamilton, Ph.D., Director (603) 650-1316, *email*: Joshua.W.Hamilton@Dartmouth.edu

With a grant from the EPA, administered by the National Institutes of Health, the Center for Environmental Health Sciences has been leading a research project examining the effects of toxic metals in the environment. The Elizabeth Mine is one of the sites they are examining. This research was conducted independently of the clean-up analysis.

Through its outreach efforts, the center also provided support for the development of educational programs with the Newton School based on the

Elizabeth Mine. A multi-disciplinary approach was taken in the school to use the mine and mine-related subjects to teach science, math, English, and other classes. The work undertaken in these classes was presented by the students to the community. The students then developed the content for a website of their work, hosted by the center. Dartmouth also developed a website for the mine itself. The intention is for the website to become a primary repository for information about the mine, providing interpretation of its history and legacy, and supplying updated information about the clean-up process and supporting efforts. The work supported by the center at the Newtown School may serve as a model for additional curriculum development projects for other grade schools in the region.

Researchers at Dartmouth have been working on various projects related to the mine for many years. There is a continuing interest in further research at the mine, presenting future opportunities for collaboration. The college may also serve as a conduit for future EPA grant funding. The continuing collaboration with Dartmouth is likely and should be cultured as needed.

Johnson State College

337 College Hill
Johnson, VT 05656
Contact: Robert Genter , (802) 635-1398, *email*: genter@badger.jsc.vsc.edu

Robert Genter, a professor of environmental and health sciences, has undertaken research on algae in the Ompompanoosuc River and its tributaries to examine the effects of mine-tailings runoff on the ecology of the river. This work was funded by the EPA as part of the superfund investigations. He has prepared a proposal to develop classes at the college that focus on further, multi-disciplinary investigations at the mine. This effort would be co-sponsored with state and local agencies and the private sector. Such a project might serve as a model for future college-level curriculum projects developed for the mine. The projects would likely be developed by faculty such as Robert Genter and could be facilitated locally by either interested individuals, existing groups, or a future mine group.

Middlebury College

Geology Department
Bicentennial Hall
Middlebury, VT 05753
Website: http://www.middlebury.edu/
Contact: Peter C. Ryan , (802) 443-2557, *email*: pryan@middlebury.edu

Peter C. Ryan, professor of environmental science and clay mineralogy, was retained by the EPA to advise the towns of Strafford and Thetford on the remediation of the Elizabeth Mine. He has also led students to the mine site

for research trips. There may be future opportunities to work with Middlebury College on additional research and education projects. Such projects would likely be developed by faculty such as Peter Ryan and could be facilitated locally by either interested individuals, existing groups, or a future mine group.

University of Vermont

Department of History
Wheeler House
133 South Prospect Street
Burlington, VT 05405
General number: (802) 656-3180
General email: histpres@zoo.uvm.edu
Contact: Thomas Visser, Director, *email*: Thomas.Visser@uvm.edu

1. Historic Preservation Program
Website: http://www.uvm.edu/~histpres/uvmhp.html
The Historic Preservation (HP) Program offers a degree program for academic training in the field of historic preservation. The curricula includes hands-on classes in which students work with communities and groups on preservation issues they face. These projects are undertaken across northern New England. In some years, several projects are undertaken. The department can be contacted to have students undertake a project related to the preservation and interpretation of the mine, though it may take some time to get into the planning cycle because the program may plan for projects far in advance.

2. Architectural Conservation & Education Service
Website: http://www.uvm.edu/~histpres/arc.uvmhp.html
Operated through the HP program is the Architectural Conservation & Education Service (ACES). ACES is an outreach service designed to provide technical services and research in architectural conservation and historic preservation through grants and contracts. Examples of projects include undertaking an Historic Site Review of the Smalley Davenport Shop in Forestdale, Vermont, and the preparation of a National Register Nomination for the H.O. Wheeler School in Burlington. A project, such as the recordation of one of the mine buildings, could be undertaken through ACES. Local coordination would have to be provided.

Environment-related Organizations

Elizabeth Mine Study Group

432 Ulman Road
Thetford Center, VT 05075
General number: 802-785-4126
General email: EMSG@valley.net
Contact: Bob Walker

The Elizabeth Mine Study Group, as discussed previously herein, has been a very active participant in the mine evaluation that has been conducted for the last several years. It has organized and helped get funding for a variety of research projects and environmental studies around the mine site. Though this effort coincide with the EPA's evaluation and research efforts, the group will continue to play a role in the mine site. Many of the people in the group will continue to work on mine-related projects both collectively and individually, supplying much-needed help as the re-use project for the mine is implemented.

Upper Valley Land Trust

19 Buck Road
Hanover, NH 03755
General number: (603) 643-6626
General email: info@uvlt.org
Website: http://www.uvlt.org
Contacts: Jeanie McIntyre, Executive Director, *email*: jeanie.mcintyre@uvlt.org; Bill Bridge, Stewardship Manager, *email*: bill.bridge@uvlt.org

The Upper Valley Land Trust (UVLT) is a non-profit organization that works to preserve land in the northern valley of the Connecticut River. Working as a facilitator of land conservation, the UVLT holds conservation easements and acts as a pass-through for transferring land between owners, placing restrictions in the process. The UVLT operates according to the Land Trust Alliance's Standards and Practices for land trust operations. Typically, the UVLT brokers agreements that allow for public access to lands on which they hold easements. This access typically takes the form of trails. Special recreation programs are held on protected land.

The UVLT may be a likely candidate for holding any voluntarily acquired easements on land at the mine. They can help broker and draft the transfer agreements, write grant applications for funding, monitor the easements and property, and help facilitate the construction of trails. The UVLT can evaluate any plans for developing and managing the site, and help explore the most-effective means of achieving the conservation and public access goals

for the project. The terms of the easements will be negotiated between the UVLT, the landowner, and the site-development entity. Provisions will be written into the terms of the easement that identify long-term responsibilities for each of the parties involved.

If the purchase of an easement is the preferred course of action, several types of costs are included in this activity. These costs include the purchase price of the easement, UVLT's consultant fees for drafting the easement and facilitating its procurement, and maintenance costs to support the activities UVLT would undertake monitoring the easement. There will also be closing costs.

Vermont Agency of Natural Resources

103 South Main Street
Waterbury, VT 05671
Website: http://www.anr.state.vt.us/
Contact: George Desch, EPA Clean-up Project Manager, (802) 241-3491,
email: georged@dec.anr.state.vt.us

The mission of the Vermont Agency of Natural Resources is "to protect, sustain, and enhance Vermont's natural resources, for the benefit of this and future generations." The agency has three departments: Fish and Wildlife; Forests, Parks and Recreation; and Environmental Conservation, coordinated by a central office. The Agency is headquartered in the Waterbury State Office Complex and has regional offices in Barre, Essex Junction, North Springfield, Pittsford, Rutland, and St. Johnsbury. Staff at the regional offices include permit specialists, regional engineers, foresters, and fisheries and wildlife biologists. The agency manages the federally mandated programs for the state. The agency may be a resource for the mine regarding environmental projects, possibly providing support and serving as a clearinghouse for information and contacts for other public and private entities that could support the efforts at the mine.

The Department of Forests, Parks and Recreation manages state forests, parks, and natural areas, and provides educational, technical, and financial assistance in the areas of forestry, recreation, and conservation education. The department is composed of three divisions: Administration, Forestry, and State Parks. The department provides education information about conservation and natural resource management which could be useful for the potential management of the mine in the future.

Central Vermont Public Service

Greenteam
77 Grove St.
Rutland, VT 05701
Website: http://www.cvps.com/current/environmental_projects.shtml
Contact: Bob Justis, (802) 747-5692, *email*: rjustis@cvps.com

The Greenteam is a group of CVPS employees who volunteer their time on environmental projects throughout the state. Past projects have included trail clearing, canoe portage construction, Greenup Day cleanup, the creation of a town park, and the planting of trees to promote enhancement in Vermont's turkey flocks. Efforts at the mine can be supported by the Greenteam, but the utility of this approach may be limited in scope. The Greenteam could be brought in to participate on a specific, clearly defined project, not for project planning or development. Such a project would have to relate directly to the stated mission of the Greenteam.

Recreation-Related Organizations

Vermont Youth Conservation Corps

PO Box 482
Waterbury, VT 05676
General numbers: (800)-639-8922 or (802)-241-3699
General email: ycorps@together.net
Contact: Paul Schmidt

The VYCC is a nonprofit organization that constructs trails and undertakes wildlife habitat enhancements that offer significant educational opportunities for the young people on the work crews. These services are provided for a fee to other nonprofit entities and local governments (project sponsors) in Vermont. Typically, the VYCC is involved in the planning stages of a project once it has been determined to offer educational opportunities for the crews. They help with planning trail routes, treatments, and trailside amenities. They also provide help in identifying appropriate sources of funds for the project, and provide specific technical and budget information in support of the grant applications that would be prepared by the project sponsor.

Projects are organized on a one-week-per-crew method. The cost and project timeframe are determined by how much one crew can accomplish in one week. A crew typically consists of 8 crew members (young people, ages 16-24) and 2 adult leaders who provide oversight. Projects typically take more than one week, and some involve more than one crew each week. Work can include clearing, trail leveling, step construction, slope stabilization, and the construction of trail amenities such as picnic tables and kiosks. The project

sponsor would provide construction documents and would obtain any necessary permits.

Once funds are secured, the project is scheduled and the sponsor pays a deposit to hold the crew time on the calendar. VYCC receives more requests for crew time than they have available, so a deposits are required. The final invoice payment is generally made by the sponsoring entity after the project is completed. Projects are typically planned at least a full year in advance. This provides time to secure funding and obtain all of the necessary permits. The construction season generally runs from mid-June to the end of August.

The rate of work depends upon site conditions, such as the thickness of the understory, the steepness of the slope, the character of the terrain, and other site characteristics. Two examples include one crew that in one week cleared about a mile of thick brush and cut up to 600 feet of level trail surface, while another crew in two weeks cleared 1,000 feet of new trail through fairly open understory and cut 4,122 feet of sidehill trail. The results also vary depending upon the ability of the crews themselves.

Currently, project costs are approximately $7,000-7,500 for one crew for one week. Trail amenities such as kiosks typically cost $1,000 for materials and one half of a week of crew time, and picnic tables cost about $150 each for materials and another half of a week of crew time. The crews can also construct larger structures as long as the design is not too complex. Extra technical support can be brought in for complex projects. Project sponsors most often receive funding support from the following sources:

- VT Agency of Transportation – transportation enhancement projects
- VT Department of Forests, Parks, & Recreation – Recreational Trail Grants
- VT Department of Forests, Parks, & Recreation – Land and Water Conservation Fund
- VT Department of Environmental Conservation – Watershed Restoration Work

These programs are discussed in greater detail in the section on funding sources.

Vermont Recreation and Parks Association

1055 Main Street
Colchester, VT 05446
Website: http://www.calcaminedesign.com/vrpa
Contact: Betsy Orselet, Executive Director, *email*: orselet@adelphi.net

The association provides programmatic support for the professionals and volunteers who are engaged in enhancing recreation opportunities in the state. It does so by sponsoring conferences and workshops, publishing the

Advocate, a newsletter, administering advocacy and visibility programs, sponsoring a voluntary certification program, recognizing achievements with an award program, distributing challenge grants, providing technical resource information and consultations, hosting special events, and undertaking a variety of other services.

Connecticut River Joint Commissions

PO Box 1182
Charlestown, NH 03603
General number: (603) 826-4800
General email: crjc@cyberportal.net
Website: http://www.crjc.org/

The Connecticut River Joint Commissions (CRJC) is the body consisting of Vermont's Connecticut River Watershed Advisory Commission and New Hampshire's Connecticut River Valley Resource Commission. Since 1989, the two commissions have cooperated as the CRJC to help preserve and protect the resources of the Connecticut River Valley, and to guide growth and development. The CRJC is an advisory body and has no regulatory powers, advocating and encouraging public involvement in decisions which affect the river and the valley. It also provides information on environmental protection. Through its annual Connecticut River Valley Partnership Program, the CRJC have enabled valley residents and organizations to pursue their own projects that support enhancements to the environment, culture, and history of the region by providing grants. Projects that have received funding previously include planning and development of new trails, trail improvement, land conservation, public access, bikeways enhancements, signage, and publications. The aid of the CRJC should be sought to help with mine projects. More information about the grant program is provided herein in the Potential Funding Sources chapter. The CRJC has also developed a series of driving tours throughout the valley. Trail 8 links Strafford, Thetford, West Fairlee, and other nearby Vermont towns with New Hampshire towns across the river. The trail passes along the Mine Road. The trail is currently under development, and it is anticipated that the mine will be listed as an attraction along the road. The Joint Commissions, because of its role in conservation, may also be considered a potential environment partner.

Vermont Agency of Transportation

Bicycle and Pedestrian Program
133 State St., 5th Floor
Montpelier, VT 05633
Contact: Amy Bell, AOT Bicycle and Pedestrian Coordinator, (802) 828-5799, *email*: Amy.Bell@state.vt.us

The Agency of Transportation builds, maintains, manages, and develops policies for the state's transportation infrastructure. The bicycle and pedestrian program was developed to enhance this portion of the infrastructure by working with the regional planning commissions and metropolitan planning organizations to identify bicycle and pedestrian facility projects that can be funded through the Local Transportation Facilities Program. The funding program is discussed in the Potential Funding Sources chapter.

Vermont Agency of Transportation
Enhancements Program

133 State St., 5th Floor
Montpelier, VT 05633
Contact: Lani Ravin, (802) 828-3885, *email*: Lani.Ravin@state.vt.us

The Enhancements Program provides funding for transportation enhancements including: provision of facilities for pedestrians and bicycles; acquisition of scenic easements and scenic or historic sites; scenic or historic highway programs; landscaping and other scenic beautification; historic preservation; rehabilitation and operation of historic transportation, buildings, structures, or facilities (including historic railroads and canals); preservation of abandoned railway corridors and conversion to bicycle trails; control and removal of outdoor advertising; archeological planning and research; mitigation of water pollution due to highway runoff; tourist and welcome centers; and transportation museums.

Management-Related Organizations

Vermont Alliance for Nonprofit Organizations

299 North Winooski #3, PO Box 8345
Burlington, Vermont 05402
General number: (802) 862-0292
General email: info@vanpo.org
Website: http://www.vanpo.org

The Vermont Alliance of Nonprofit Organizations works to support: "all nonprofits in their efforts to remain viable, serve the community, provide a quality workplace for their employees, and make vital contributions in Vermont." Among its many activities, VANPO develops policies for building the capacity of nonprofit organizations, hosts training workshops, advocates for nonprofit organizations, and developing information on organizational development.

Alliance for Nonprofit Management

1899 L Street NW 6th Floor
Washington, DC 20036
General email: alliance@allianceonline.org
Website: http://www.allianceonline.org/
Contact: Roni D. Posner, Executive Director, (202) 955-8406

The **Alliance for Nonprofit Management** is a professional association of individuals and organizations who provide consulting services to nonprofits to improve the management and governance capacity of their organizations and to assist nonprofits in fulfilling their mission.

Center for Nonprofit Management

44 Vantage Way, Suite 230
Nashville, TN 37228
Website: http://www.cnm.org/
Contact: **James R. Vaillancourt**, Executive Director, (615) 259-0100

The Center for Nonprofit Management is a nonprofit organization that provides consulting and educational services plus information to help strengthen nonprofit organizations.

Chapter 7
Potential Funding Sources

Second to the question of who can be enlisted to help support the re-use of the mine is the question of how to pay for re-use projects and programs. Currently, many sources of financial assistance exist. Sources include a variety of state programs, federal programs, and a large number of private foundations and nonprofit organizations. Funds from most if not all of these sources are offered on a competitive basis. The opportunities presented by the re-use of the mine make applications to these sources very competitive. The funding sources are listed by the type of projects and program each is prepared to support. A brief discussion is also provided about the applicability of the fund to mine re-use efforts.

Recreation Funding

1. Vermont Agency of Natural Resources

Department of Forests, Parks & Recreation
103 South Main St, Building 10 South
Waterbury, VT 05671-0604
Website: http://www.fpr.anr.state.vt.us

Land Acquisition Review Committee

All applications for funding from the state that will be used for the transfer of land ownership (acquisitions and donations for land and easements, and land exchanges) are reviewed by the ANR's Land Acquisition Review Committee (LARC). The LARC is an inter-agency committee that helps the state coordinate its funding programs. The LARC reviews applications and issues recommendations, which are then considered and acted upon by the

secretary of the agency who ultimately decides how to proceed. LARC is currently composed of nine members including two representatives from the Department of Forests, Parks & Recreation, two from the Department of Fish and Wildlife, two from the Department of Environmental Conservation, one from ANR's central office, and two from the Agency of Transportation. Most of the proposals reviewed by the LARC are offers to sell land to the state. The state prioritizes the offers and pursues some for acquisition. Only a very small percentage are actually pursued by the ANR. As of 1999 when the state adopted its *Land Conservation Plan*, the ANR began to focus on the acquisition of land that offers the protection of viable, high-quality examples of native species and natural communities that have a high degree of biological integrity. Because of this focus, it may be difficult to make a case to the ANR for state ownership of portions of the Elizabeth Mine Site. Making the case for either easements or landowner agreements for public use and access would likely be easier.

Recreation Trails Grant Program
Contact: Sherry Smecker, Grants Administrator, (802) 241-3690, *email:* ssmecker@fpr.anr.state.vt.us

Funds are provided through matching grants to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail use. Up to $300,000 is available annually, with grant amounts typically ranging from $5,000 to $15,000. Eligible projects include:

- Construction of new trails on state, municipal, or private lands (with permission)
- Maintenance of existing trails
- Acquisition of easements and fee simple title to properties for trails
- Creation of trail linkages
- Restoration of areas damaged by trail use
- Development of trailside and trailhead facilities
- Improving access for disabled trail users
- Preparation and printing of plans, studies, maps, and other educational information related to trails
- Operation of educational programs to promote safety and environmental protection
- Purchase of hand tools, hand-held power tools, and small construction equipment for trail development

Grants are offered on an annual cycle with applications usually due in late January. Grants are available to municipalities and nonprofit organizations.

➤ ***Potential Use at Elizabeth Mine:*** These funds could be a primary source of state support for the development and maintenance of trails.

Land and Water Conservation Fund Grants
Contact: Laurie Adams-Smith, (802) 241-3690

Funds are provided through the ANR for outdoor recreation facility development and land acquisition for either conservation or for future outdoor recreation development that is consistent with the state's comprehensive outdoor recreation plan. Funds are provided to states by the federal Land and Water Conservation Fund. Grants are only available to municipalities. Grants are offered annually with application deadlines often in February. Assistance from the appropriate Regional Planning Commission is highly recommended for completing the application. The Department of Forests, Parks & Recreation reviews project applications. Accepted applications are then sent to the National Park Service for approval. Projects have been granted more than $100,000. Funding is provided on a reimbursement basis. Eligible projects include:

- Acquisition of real property, easements, or other rights for recreational use
- Development, construction, and rehabilitation of outdoor recreation facilities or areas, including the costs of construction, purchase of recreation equipment, and informational and directional signage

➤ *Potential Use at Elizabeth Mine*: These grants could be a primary source of funds for major physical improvements for recreational uses, especially regarding the securing of land. These grants are likely to be very competitive, therefore, much support for the project will have to be sought from the community, municipal entities, and state agencies.

2. Vermont Agency of Transportation

133 State St., 5th Floor
Montpelier, VT 05633
Website: http://www.aot.state.vt.us
(802) 828-3885 or (802) 828-0583

Transportation Enhancements Program

Contact: Lani Ravin, (802) 828-3885, *email*: Lani.Ravin@state.vt.us
Supported by the federal TEA-21 program, the AOT provides reimbursable funds for projects that enhance multi-modal transportation goals in the areas of bike and pedestrian paths, scenic protection, historic preservation, archeological planning, tourist and welcome centers, and transportation museums. Preservation projects must have a direct, evident, and strong relationship to the surface transportation system through use, or proximity to a state scenic byway or alternate designated scenic or historic route. Twenty-percent matches are required. Grant awards range from $5,000 to approximately $300,000. Local, state, and federal governments and

nonprofit organizations are eligible. The grants are awarded annually. Funding is available for transportation enhancements such as:

- provision of facilities for pedestrians and bicycles;
- acquisition of scenic easements and scenic or historic sites;
- landscaping and other scenic beautification;
- historic preservation;
- rehabilitation and operation of historic transportation, buildings, structures, or facilities
- archeological planning and research; and
- tourist and welcome centers

➤ *Potential Use at Elizabeth Mine*: Because almost all of the above enhancements could be implemented at the mine, this program may be a major source of funds.

Local Transportation Facilities Program/Bicycle and Pedestrian Program
Contact: Amy Bell, Bicycle and Pedestrian Coordinator, (802) 828-5799, *email*: Amy.Bell@state.vt.us
Working with regional planning commissions and metropolitan planning organizations, the AOT helps fund feasibility studies for potential bicycle- and pedestrian-facility projects. In fiscal year 2003, $250,000 is allocated for awards ranging from $10,000 to $20,000. A 10 percent match is required. The feasibility studies are required to include a review of historic and archeological resources, evidence of municipal management of the project, environmental clearances and permits, right-of-way acquisition, and design standards.
Website: www.aot.state.vt.us/projdev/Sections/LTF/LTF.htm

➤ *Potential Use at Elizabeth Mine*: This program can help fund early planning for a trail system.

3. Connecticut River Partnership Program

Connecticut River Joint Commissions
P.O. Box 1182
Charlestown, NH 03603
(603) 826-4800
Contact: Sharon Francis, Executive Director

Grants are provided for projects that address identification and protection of historic resources, improving water quality, providing river-related recreation opportunities, enhancing tourism in the valley, and promoting the Connecticut River Scenic Byway. The program focuses on implementing recommendations in the Connecticut River Corridor Management Plan and the Connecticut River Scenic Byway Plan. Eligible projects include planning and development of new trails, trail improvement, land conservation, public

access, bikeways enhancements, signage, and publications. Awards range from $500 to $5,000, and are eligible for municipalities and regional and nonprofit organizations in the Connecticut River watershed. Grant rounds are annual.

- *Potential Use at Elizabeth Mine*: These funds could be used for trail development, signage, and other supporting materials and items.

4. Vermont Recreation and Parks Association

1055 Main Street
Colchester, VT 05446
Website: www.calcaminedesign.com/vrpa
Contact: Betsy Orselet, Executive Director, *email*: orselet@adelphi.net

The association supports the growth and enhancement of recreation opportunities by sponsoring conferences and workshops, publishing a newsletter called the *Advocate* and a weekly "Recreation Check In" email, encouraging advocacy and visibility programs, running a voluntary certification program, sponsoring an awards program, distributing challenge grants, providing technical resource information, consulting, hosting special events, and supplying other services.

- *Potential Use at Elizabeth Mine*: Funds could be sought from this source in support of recreation facilities and promoting the mine site as a recreational venue.

5. Vermont Youth Conservation Corps

PO Box 482
Waterbury, VT 05676
(800)-639-8922 or (802)-241-3699
General email: ycorps@together.net

The Vermont Youth Conservation Corps coordinates and provides trail work crews of Vermont youths for conservation projects. These include building trail and wildlife habitat enhancement projects. VYCC leaders provide expertise and oversight for the crews. Communities can either hire a trail crew through the Fee-for-Service program or apply for a Greenways Crew funded by AOT and FHWA.

- *Potential Use at Elizabeth Mine*: This may be a source of labor that is less expensive than contracting trail construction. Such an endeavor could be built into a large-scale trail building effort that pulls many community members together over a season to build trails.

6. U.S. Soccer Foundation

1050 17th Street, NW
Suite 210
Washington, DC 20036
Grants Department: (202) 872-6664
Website: http://ussoccerfoundation.org

The US Soccer Foundation provides grants to "enrich lives through soccer" by developing soccer programs for ethnic, minority, and economically disadvantaged players and programs that support the development of skills for players, coaches, and referees. Grants can also be used for the development of soccer fields. These competitive grants must be used to leverage additional funds. The application deadline is in December and grant awards are announced in the following spring.

➤ ***Potential Use at Elizabeth Mine***: These grants could be an important source of funding for the development of soccer fields, but not until the remediation measures have been implemented for TP1.

Preservation and Conservation Funding

7. Vermont Housing and Conservation Board

149 State Street
Montpelier, VT 05602
Website: www.vhcb.org
Contact: Karen Freeman, (802) 828-3250; *email*: kfreeman@vhcb.state.vt.us

The board provides grants and loans for the conservation of agricultural and recreational land, natural areas, historic resources, archeological sites, and for the development of housing for low and moderate-income households. The board is a primary granting entity for federal transportation enhancement funds and funds from the U.S. Department of Agriculture. Archeological projects may involve fee simple acquisition or purchase of conservation easements on important sites. Historic buildings must be of outstanding local or regional significance and be regularly used by the public. Awards range up to $100,000 for local conservation (historic properties, natural areas, or recreational lands); up to $125,000 plus associated costs for local farmland conservation; no limit for statewide conservation (historic properties, natural areas, or recreational lands); and up to $350,000 per application for statewide agricultural conservation. Municipalities, nonprofit organizations, and certain state agencies are eligible. Grant awards are made through multiple cycles per year.

➤ *Potential Use at Elizabeth Mine*: This fund could be a major source of financing for the acquisition of easements, development rights, or fee simple ownership of historic resources and landscape features, and routes for trails.

8. Vermont Division for Historic Preservation

National Life Building, Drawer 20
Montpelier, VT 05620-0501
(802) 828-3211
Website: http://www.historicvermont.org/
General Contacts: Giovanna Peebles, State Archeologist, (802) 828-3050
John Dumbille, State-Owned Historic Sites and Historic Markers (802) 828-3051
Elsa Gilberton, Regional Administrator, Historic Sites (802) 759-2412
William Jenney, Regional Administrator, Historic Sites (802) 672-3773

Certified Local Government Grants

Contact: Chris Cochran, (802)828-3211, *email*: Cochran.chris@state.vt.us
NPS and State governments, through their State Historic Preservation Offices (SHPOs), provide valuable technical and financial assistance. CLG matching grants can be used to fund a wide variety of local preservation projects, including the following:

- architectural, historical, archeological surveys, and oral histories that help identify significant properties;
- preparation of nominations to the national register of historic places;
- research and development of historic context information;
- staff work for historic preservation commissions, including designation of properties under local landmarks ordinances;
- writing or amending preservation ordinances;
- preparation of preservation plans;
- public information and education activities;
- publication of historic sites inventories;
- development and publication of design guidelines;
- preparation of zoning studies;
- development and publication of walking/driving tours;
- development of slide/tape shows, videotapes;
- training for commission members and staff;
- development of architectural drawings and specifications;
- preparation of streetscape, facade studies, or condition assessments; and
- in some years, rehabilitation or restoration of properties individually listed in the National Register of Historic Places or contributing to a National Register Historic District.

While CLG grants generally represent a relatively small amount of money ($5-$25,000), they can be used as seed money to attract funding from other sources.

➤ *Potential Use at Elizabeth Mine*: Strafford would have to become a Certified Local Government and then compete against other CLGs for funding. The amount of effort required for becoming a CLG and going through the application process may hinder the efficacy of using this program as a funding source for mine-related projects.

Historic Preservation Fund

Contact: Eric Gilbertson, (802) 828-3211, *email*: ergilbertson@dca.state.vt.us

Since 1987, the Vermont Division for Historic Preservation has had a 50/50 matching grants program to assist municipalities and nonprofit organizations in restoring important historic buildings across the state. Each year, grants of up to $15,000 are awarded to help preserve and repair buildings that will promote the public's awareness and appreciation of Vermont's cultural heritage. Town halls, municipal buildings, churches, historical societies, granges, and many other kinds of buildings have been funded. Eligible work includes restoration and repair of roofs, structural elements, windows, foundations, and other important components of historic buildings. Among the kinds of activities funded are the following:

- architectural, historical, archeological surveys;
- nominations to the National Register of Historic Places;
- staff work for historic preservation commissions;
- design guidelines and preservation plans;
- public outreach materials such as publications, videos, exhibits, and brochures;
- training for commission members and staff; and
- rehabilitation or restoration of National Register-listed properties.

Range: $1,000 - $15,000

Eligibility: Municipalities and nonprofit organizations.

Deadlines: Late fall.

➤ *Potential Use at Elizabeth Mine*: These funds can be used for developing public outreach materials (brochures, guidebooks, videos, audio guides, CD-ROMS, websites, etc.), further survey work, preparing National Register nomination applications, helping to fund the rehabilitation of those structures, and preparing maintenance guidelines for mine structures and built landscape features.

Rehabilitation Investment Tax Credit

Contact: Chris Cochran, *email*: ccochran@dca.state.vt.us

Rehabilitation tax credits off of federal income taxes are available for up to

20% of the eligible rehabilitation costs (including labor, materials, and architects or other consultant fees) for income-producing buildings listed in the National Register of Historic Places. The tax credit may apply to properties such as a retail stores, office buildings, apartment buildings, or vacation rentals. Private homes, which do not generate income, are not eligible for the credit. Owners or long-term lessees of historic buildings used for income-producing purposes are eligible for participation. The program operates on an ongoing basis throughout the year. The application should be filed prior to beginning construction. The tax credits can be dispersed over five years in order to maximize the realization of the credit. Eligible costs are on rehabilitation actions that meet the Secretary of the Interior's Standards for Rehabilitation. Applicants file for approved credit at the end of the tax year.

- ***Potential Use at Elizabeth Mine***: If a property owner chooses to rehabilitate a structure for the purpose of having the structure generate income, the costs of the effort can be reduced through a reduction in federal income taxes for the property owner. This can be encouraged as part of the overall site re-use program. The Mining Historic District would have to be successfully listed on the National Register before the tax credit applications are filed.

9. Preservation Trust of Vermont

104 Church St.
Burlington, VT 05401
Website: www.ptvermont.org

Preservation Grants
Contact: Paul Bruhn, Executive Director, (802) 658-6647; *email* paul@ptvermont.org
With the generous support of the Freeman Foundation, the Preservation Trust offers preservation grants to nonprofit organizations for rehabilitating historic buildings. In 2001, $1,000,000 in grants were awarded for 32 projects around the state. These grants were awarded for historical societies, museums, theaters, opera houses, affordable housing, arts space, churches, libraries, town halls, and others. Eligible projects must have strong community support, as demonstrated by volunteer and fundraising efforts. Awards are offered on an ongoing basis year-round and range from $5,000 to $50,000 with awards averaging between $25,000 and $35,000. Communities and nonprofit organizations are eligible for participation. The trust also gives special recognition to outstanding preservation projects.

- ***Potential Use at Elizabeth Mine***: This program could be a major source of funds for rehabilitation efforts.

Preservation Trust of Vermont /National Trust for Historic Preservation Field Services Program – Project Development Grants
Contact:: Ann Cousins, Field Representative, (802) 434-5014, *email*: ann@ptvermont.org, or Doug Porter, Field Representative, (802) 644-2815, *email*: doug@ptvermont.org
The Field Services Program is a joint venture of the Preservation Trust of Vermont and the National Trust for Historic Preservation. Matching grants up to $500 are available from the Robert Sincerbeaux Fund to municipalities and nonprofit organizations for hiring consultants to provide specialized assistance for preservation projects. Eligible activities include engaging consultants with technical expertise for building assessments, organizational development, project planning, management, fundraising, feasibility assessments, and other related aspects of a preservation project. Grant awards range from $250 for a building assessment up to $500 for other activities. Fifty-nine organizations received funding in 2001, and 150 local organizations received technical assistance. Deadlines are rolling.

➤ *Potential Use at Elizabeth Mine*: These grants can be used for building assessments and project analyses.

10. Vermont Agency of Natural Resources

Department of Forests, Parks & Recreation
103 South Main St, Building 10 South
Waterbury, VT 05671-0604
Website: http://www.fpr.anr.state.vt.us

Vermont Watershed Grants
General number: (802) 241-3771
Website: www.anr.state.vt.us/dec/waterq/lakesgrants.htm
Funded from proceeds from the sale of Vermont Conservation License Plates, these grants are awarded for local and regional water-related projects. Grant amounts range from $200 to $1,000 for Watershed Mini-Grants and $1,000 to $5,000 for Watershed Grants. Municipalities, local or regional governments, nonprofit organizations and citizen groups are eligible. Grants are provided on an annual basis. The Elizabeth Mine Study Group has previously received four grants from this source. Eligible projects include those that:

- Protect or restore fish and wildlife habitats
- Protect or restore water quality and shorelines
- Monitor fish and wildlife populations and/or water quality
- Enhance recreational use of enjoyment of watershed
- Educate people about watershed resources
- Identify and protect historic and cultural resources

➤ *Potential Use at Elizabeth Mine*: Though historic resources and recreation are mentioned in the literature, the emphasis of this program is on waterways and water health. This grant program may be better suited for funding environmental education projects rather than trail construction or building rehabilitation projects.

11. Vermont Department of Housing and Community Affairs

National Life Building, 6th Floor
Drawer 20
Montpelier, VT 05620-0501
(802) 828-3211
Website: http://www.state.vt.us/dca/housing/

Municipal Planning Grant Program
Contact: Peg Elmer or Wendy Tudor, *email*: wtudor@dca.state.vt.us
Grants for municipal land use plans, zoning ordinances, and subdivision bylaws. Grants may also be used for special studies related to the plan or bylaws, including historic survey work. Awards range from $500 to $15,000 and are available to municipalities with adopted plans approved by their regional planning commission. Applications are usually due in September or October.

➤ *Potential Use at Elizabeth Mine*: This grant program may be used to help with the cost of any potential further analysis of historic resources at the mine.

Community Development Block Grant Program - Implementation Grants
Contact: M. Dugan, *email*: mdugan@dca.state.vt.us
Federal grants for projects that involve economic development, housing, public facilities, and public services that will have direct benefit for persons of low and moderate income, eliminate slums or blight, or address an urgent need. Projects supporting normal municipal functions are not eligible. Projects in municipal facilities are eligible if they meet the benefit requirement. Grants range from $50,000 to $750,000 and are available for eligible municipal projects. Municipalities may also apply on behalf of other organizations and private owners for projects with community benefit. Multiple cycles of funding are available per year.

➤ *Potential Use at Elizabeth Mine*: Currently, the mine buildings are in a blighted state. Perhaps a CDBG can be used if the goal is to create a interpretive/educational/cultural venue that serves the community. More research is need to determine if this is a viable funding option.

12. National Trust for Historic Preservation

1785 Massachusetts Avenue, NW
Washington, D.C. 20036

National Preservation Loan Fund
Contact: Jenifer Eggleston, *email*: jenifer_eggleston@nthp.org, (202) 588-6000
Below-market-rate loans, lines of credit, or participation loans with other lenders can be used to acquire, stabilize, rehabilitate, or restore a historic property for use, lease, or resale; establish a revolving fund; purchase easements or options to acquire historic properties; or finance pre-development activities. Innovative project models are encouraged, and threatened National Historic Landmarks receive the highest priority for funding.
Range: $50,000 - $350,000
Eligibility: Public agencies and nonprofit organizations.
Deadlines: None.

➤ ***Potential Use at Elizabeth Mine***: Because these large grants are available nationwide, competition is likely to be stiff. Therefore, applying for them would likely require a great deal of coordination between partners at the local and state level. Preparing the application and securing all of the support would be difficult, but not impossible.

13. National Trust for Historic Preservation - Northeast Regional Office

7 Faneuil Hall Marketplace
Boston, MA 02109
(617) 523-0885
Contact: Leigh Seyfert, *email*: leigh_seyfert@nthp.org

Johanna Favrot Fund
Grants for projects that contribute to the preservation or the recapture of an authentic sense of place, through support of consultants, conferences, workshops, and development of educational programs.
Range: $5,000 - $10,000
Eligibility: Nonprofit organizations, government agencies, for-profit businesses, and individuals.
Deadline: February 1.

➤ ***Potential Use at Elizabeth Mine***: These grants could be used to fund conferences, workshops, and educational programs. A great many types of entities are eligible, so the application would have to be very competitive, involving much planning and preparation.
Considering the significance of the site and the amount of attention,

research, and scholarship that has been conducted to date, a conference should be very fundable through this fund.

Preservation Services Fund
Matching grants to initiate historic preservation projects through support of consultants, conferences, and curriculum development.
Range: $500 - $5,000 (average $500 - $1,500)
Eligibility: Nonprofit organizations, universities, and public agencies.
Deadlines: October 1, February 1.

➤ *Potential Use at Elizabeth Mine*: This fund has applicability for the Elizabeth Mine site, but applications for the funds could not be made until the question has been answered of how the stabilization will be undertaken.

14. National Park Service

Heritage Preservation Services
National Center for Cultural Resources Stewardship & Partnership Programs
1849 C Street, NW, NC330
Washington, D.C. 20240
(202) 343-9583
General email: nps_hps-info@nps.gov

Federal Save America's Treasures Grants
Website: http://www2.cr.nps.gov/treasures/
These grants will support preservation and conservation work on nationally significant intellectual and cultural artifacts and nationally significant historic structures and sites. The Federal Save America's Treasures Grants are administered by the National Park Service in collaboration with the National Endowment for the Arts, the National Endowment for the Humanities, and the Institute of Museum and Library Services. The NPS offers grants for preservation and conservation work on nationally significant intellectual and cultural artifacts and nationally significant historic structures and sites.
Range: Minimum $50,000 for collections, $250,000 for historic property projects; maximum $1 million.
Eligibility: Federal, state, and local government agencies, and nonprofit institutions (except active religious congregations.) Buildings must have national significance.
Deadlines: not established yet for 2004.
Questions concerning collections projects should be addressed to the National Endowment for the Arts, (202) 682-5489.

➤ *Potential Use at Elizabeth Mine*: With a determination that the mine is nationally significant, preservation, stabilization and rehabilitation activities may qualify for support from these grants. Like the

National Trust for Historic Preservation grants, these large grants are very competitive, and are therefore difficult to secure. Because the site has been determined to be nationally significant, and because the Vermont Agency of Natural Resources supports the stabilization of the resources, support could be garnered for the application. Coordination with a variety of local and state entities would be needed for the planning of a fundable project and the application.

15. National Park Service
Rivers, Trails & Conservation Assistance - Vermont
Marsh-Billings-Rockefeller National Historical Park

54 Elm St
P.O. Box 178
Woodstock, VT 05091

The Rivers, Trails & Conservation Assistance Program
Website: http://www.nps.gov/rtca/
Contact: Lelia Mellen, *email*: lelia_mellen@nps.gov, (802) 457-3368, ext. 14
This program, also known as Rivers & Trails, supports community groups and local and state governments in the conservation of rivers, preservation of open space, and the development of trails and greenways. The Rivers & Trails program is a national network of 90 conservation and recreation-planning professionals based around the country. Rivers & Trails provides assistance to nonprofit organizations, community groups, tribes or tribal governments, and local or state government agencies. This assistance includes building partnerships to achieve community-set goals, assessing resources, developing concept plans, engaging public participation, and identifying potential sources of funding. National Park Service staff for the Rivers & Trails program are based in 35 field locations to make them more readily accessible to nonprofit organizations and local and state governments in all 50 states. In 2002, it assisted 315 community projects, which included trails and greenway planning, open space protection, river conservation, watershed planning, rail-trail conversions, and urban greening.

➤ *Potential Use at Elizabeth Mine*: Financial and technical support for trail-building and interpretation could be provided through this program.

Tax Deduction to Remove Architectural and Transportation Barriers to People with Disabilities and Elderly Individuals
Website: http://www.usdoj.gov/crt/ada/taxpack.htm
Federal tax deduction for expenditures that improve accessibility for a facility owned by the taxpayer for use in his or her business. The National Park Service administers applications. The Internal Revenue Service grants the tax credits.

Range: Up to $15,000.
Eligibility: Business owners.
Deadlines: File at end of tax year.

➤ *Potential Use at Elizabeth Mine*: The applicability of this program is very narrow. It would be applicable for helping a for-profit enterprise on the site comply with ADA guidelines.

16. Internal Revenue Service

Disabled Access Tax Credit
Website: http://www.usdoj.gov/crt/ada/taxpack.htm
Website: http://www.irs.gov
Federal tax credit of 50% of eligible access expenditures (architectural adaptations, equipment purchase, and services like sign language interpreters) that exceed $250 but do not exceed $10,250.
Range: Up to $5,000.
Eligibility: Small businesses with under $1 million in revenues or under 31 full-time employees.
Deadlines: File at end of tax year.

➤ *Potential Use at Elizabeth Mine*: Like above, the applicability of this program is very narrow. It would be applicable for helping a for-profit enterprise on the site comply with ADA guidelines.

17. Chittenden Bank's Socially Responsible Banking Fund

Chittenden Bank
100 Main Street
P.O. Box 804
Brattleboro, VT 05302-0804
Website: http://www.chittenden.com

Fund focuses on affordable housing, economic development, conservation, agriculture, and downtown development and community building, and on providing below-market-rate loans for purchase of historic properties, rehabilitation and new construction, bridge loans (to cover costs while waiting for payment of a grant or payment of capital campaign pledges), or lines of credit. Range: Size of loan depends on the project, owner equity, risk factors, etc.
Eligibility: Individual business owners, small businesses, nonprofit organizations, or municipalities.
Deadlines: none, loans are made throughout the year
Contact: Arne Hammarlund, SRB Loan Officer, (802) 258-4090; *email:* ahammarlund@chittenden.com

➤ *Potential Use at Elizabeth Mine*: This fund is mainly available for for-profit enterprises that may re-use portions of the site, making the applicability limited at this time.

18. The Vermont Community Foundation

Three Court Street
P.O. Box 30
Middlebury, VT 05753
Website: http://www.vermontcf.org

The Walter Cerf Community Fund

The Walter Cerf Community Fund makes grants to address charitable needs in the state of Vermont. Priority interests are the arts, education, historic preservation, and social services. Programs and projects located in the town of Brandon and Addison County are preferred, but funds are available for programs and projects statewide. Grants ranges from $500 to $5,000.

➤ *Potential Use at Elizabeth Mine*: This fund is quite limited in its size and scope. Grants from this could be requested in support of a larger rehabilitation effort of which this would provide a small part of the overall cost.

19. The National Science Foundation

4201 Wilson Boulevard
Arlington, VA 22230
(703) 292-5111

The National Science Foundation funds research and education in science and engineering through grants, contracts, and cooperative agreements with more than 2,000 colleges, universities, and other research and education institutions across the country. The foundation accounts for about 20 percent of federal support to academic institutions for basic research.

➤ *Potential Use at Elizabeth Mine*: The NSF can help fund further research at the mine. When researchers apply for funding from this and a variety of other sources, a future management entity associated with the mine can write letters of support for the application.

20. U.S. Environmental Protection Agency

Region 1, 1 Congress St.,
Boston, MA 02114-2023
(617) 918-1111, (888) 372-7341

The EPA provides funding through grants for a variety of education and enhancement projects to public and private entities. These grant programs include but are not limited to the following:

- The Brownfields Grants Program provides funding for the expansion or redevelopment of brownfield sites that are complicated by real or perceived environmental contamination.
- The Environmental Education Grants Program supports environmental education projects which enhance the public's awareness, knowledge, and skills to make informed and responsible decisions that affect environmental quality.
- The Environmental Justice through Pollution Prevention grant program supports community-based groups across the nation in developing collaborative approaches to achieve environmental justice through pollution prevention.
- National Center for Environmental Research and Quality Assurance provides grants, fellowships, and research associateships, and funds the Small Business Innovative Research Program
- The Pollution Prevention Incentive for States Grant Program provides about $5 million annually to state and tribal programs to help develop and sustain state pollution prevention program activities and pioneer new approaches.
- The Water Grants Program funds a variety of projects that improve the nation's supplies of water.

➤ *Potential Use at Elizabeth Mine*: Many of these programs have been used to fund work at the mine. Further funding can be expected as work continues. When researchers apply for funding from the EPA, a future management entity associated with the mine can write letters of support for the application.

Education and Interpretation Funding

21. U.S. Department of Agriculture

USDA Rural Development
3rd Floor City Center
89 Main Street
Montpelier, VT 05602
Website: http://www.rurdev.usda.gov/vt/
(802) 828-6032

Community Facility Grants
Contact: Gary Beem or Naomi Hatch
Federal grants to assist rural communities develop or improve essential community facilities, including theaters, community centers, museums, and

municipal buildings. May be used for acquisition, construction, or improvements to buildings and equipment.
Range: Up to $50,000 or 75% of the project cost, whichever is less.
Eligibility: Nonprofit corporations and public bodies serving certain rural communities (see website).
Deadlines: Ongoing, but priority for applications received by December 15.

➤ *Potential Use at Elizabeth Mine*: Fund may help pay for the cost of developing the interpretive venue.

22. Vermont Collections Care Program

c/o Fairbanks Museum
1302 Main Street
St. Johnsbury, VT 05819
(800) 639-2330
Contact: M. J. Davis, *email*: vccp@kingcon.com

Matching grants for the survey and treatment of museum collections including paintings, textiles, paper, furniture, etc.
Range: Initial Collections Surveys - $125 - $750 with 1:1 match.
Specific Collection Surveys - $500 -$1,000 with 1:1 match.
Implementation of Survey Recommendations - Up to $1,000 with 2:1 match.
Treatment - Up to $1,000 with 2:1 match.
Eligibility: Nonprofit organizations who are members of the Vermont Museum and Gallery Alliance
Deadlines: March 31, October 31

➤ *Potential Use at Elizabeth Mine*: As an interpretive venue develops for the mine site, a collection of artifacts should be gathered for interpretive exhibits, education, and research. This program can help support the collections program of such an effort.

23. Vermont Council on the Humanities

200 Park Street
Morrisville, VT 05661
(802) 888-3183

Humanities Grants
The Vermont Council on the Humanities offers grants for projects that "have strong, clear humanities content; will help to achieve the goal of rich involvement in the humanities for all Vermonters; involve cooperation and collaboration among groups and organizations with common interests; build community by reaching out to traditionally under-served audiences; and are

likely to have sustained results and/or are suitable for replication in other communities."

Eligible projects include :

- book discussion programs
- humanities lectures and discussions
- museum exhibits and planning grants
- honoraria for humanities personnel to fulfill a project
- humanities projects for intergenerational audiences

Grants are available to nonprofit organizations for as much as to $15,000.

➴ *Potential Use at Elizabeth Mine*: These funds might be available for exhibit and program development for an on-site interpretive venue.

24. The Vermont Community Foundation

Three Court Street
P.O. Box 30
Middlebury, VT 05753
Website: http://www.vermontcf.org

Sustainable Future Fund

The purpose of the Sustainable Future Fund is to support projects related to ecological understanding, organic agriculture, wilderness protection, and sustainable economic practices. Grants range from $1,000 to $10,000

➤ *Potential Use at Elizabeth Mine*: These funds might be available for projects that are directed toward the mine site as a wilderness landscape that surrounds a historic cultural landscape. Such projects could be interwoven with history-related projects. Funds could be sought for projects that may be developed in support of ecology education and wilderness protection.

25. Upper Valley Community Foundation Grants

P.O. Box 995
Hanover, NH 03755
(603) 653-0387
Contact: Kevin Peterson, Senior Program Officer

The Upper Valley Community Foundation endowment (UVCF) is a joint initiative of two statewide public foundations: the Vermont Community Foundation and the New Hampshire Charitable Foundation. The two are collaborating with a board of local leaders to increase philanthropic resources dedicated to the Upper Valley region and to help residents preserve and improve the quality of life in Upper Valley communities. Eligible projects

must be located in or serving the Upper Valley Region of Vermont and New Hampshire. Grants range from $1,000 to $10,000 and have been used to fund projects serving the arts and humanities, education, environment, historic resources, health, public affairs, community development, and social services.

- *Potential Use at Elizabeth Mine*: Several types of projects that could be developed for the mine site could include education programming, environmental protection and education, historic preservation, art components, and community development. This fund may be used to support many of these types of projects.

The following funds are also managed by the UVCF:

Wellborn Ecology Fund
The Wellborn Ecology Fund is dedicated to increasing awareness of environmental and ecological issues in the Upper Valley. Grants range in value of up to $5,000 for projects and up to $40,000 for programs.

- *Potential Use at Elizabeth Mine*: Environmental education could be a component of the development and re-use of the mine site. Such projects may receive funding from this source.

Upper Connecticut River Mitigation and Enhancement Fund
The fund was established as part of the settlement agreement associated with the Fifteen Mile Falls hydroelectric generation. Managed by the Upper Valley Community Foundation, funds are made available for river restoration work in the upper Connecticut River watershed; wetland restoration, protection and enhancement; and riverine shoreland protection. Specifically, projects must be located within the watershed of the Connecticut River upstream of the confluence of the White and Connecticut Rivers at White River Junction, Vermont, and Lebanon, New Hampshire. Project grants are available up to $5,000 and Strategic Focus Grants are available for more than $5,000.

- *Potential Use at Elizabeth Mine*: This fund may not have a direct connection with projects currently intended for the mine site, but if private environmental remediation efforts are developed in the future that may benefit the mine site, this fund may be a source of support.

Arts Funding

26. Vermont Arts Council

136 State Street
Montpelier, VT 05633-6001
(802) 828-3778

Cultural Facilities Grants
Operated in partnership with the Vermont Historical Society and the Vermont Museum and Gallery Alliance, the program offers state grants to improve facilities used for providing cultural events and activities for the public, including wiring, heating, lighting, stage work, bathrooms, and handicapped accessibility improvements. Structural work and routine maintenance are not usually funded. Grant awards range from $750 to $4,000. Municipalities and nonprofit organizations are eligible. Grants are awarded annually.

- *Potential Use at Elizabeth Mine*: It may be a possibility that an interpretive venue will have history-themed artwork installed and may host cultural events. Grants from this source could help outfit the venue with the necessary improvements to make this possible.

Local Community Arts Partnership Grants
Contact: Janet Ressler Director of Community Programs
Available to arts organizations for work in the community to develop or continue partnerships with, primarily, non-arts organizations, and can include partnerships with municipalities, social service organizations, educational institutions, regional planning and marketing organizations, etc. Grant awards up to $10,000 are available and require a 50/50 match. Only arts organizations are eligible. Grants are awarded annually.

- *Potential Use at Elizabeth Mine*: To be eligible, the Elizabeth Mine will need to partner with an arts organization. This will be necessary to develop arts programming, and it will enable the mine to seek grants from this fund.

Opportunity Grants
Contact: Janet Ressler, Director of Community Programs
Opportunity grants are the primary vehicle by which the Council supports artists, arts organizations, arts in communities, and arts in education. Matching grants are given to fund program activities, not capital expenditures. Projects must be primarily arts projects. Awards range from $250 to $7,000. Municipalities and nonprofit organizations are eligible. Several grant rounds are offered throughout the year.

➤ *Potential Use at Elizabeth Mine*: Such grants could support on-site and off-site community arts programs that build upon and celebrate the mine's heritage and environment.

27. The Vermont Community Foundation

Three Court Street
P.O. Box 30
Middlebury, VT 05753
Website: http://www.vermontcf.org

Vermont Arts Endowment Fund
Contact: Mary Conlon, Program Associate, *email*: mconlon@vermontcf.org
The Vermont Community Foundation's Arts Endowment Fund supports the efforts of Vermont artists and arts organizations in two areas: 1) creation and production of new work and 2) technical assistance. Grants are eligible for Vermont artists/arts organizations, 501(c)3 organizations, or fiscal sponsors. Grants range from $1,000 to $4,000.

➤ *Potential Use at Elizabeth Mine*: Such funds could be used if a specific art installation were added to the re-use program in the future.

28. The Vermont Community Foundation

Three Court Street
P.O. Box 30
Middlebury, VT 05753
Website: http://www.vermontcf.org

The Vermont Community Foundation serves as a manager of grants for its own funds and for other charitable funds. Types of project that are eligible for funding include, but are not limited to, the arts and humanities, education, the environment, historic resources, health, public affairs and community development, and social services. The foundation emphasizes small (typically under $10,000) one-time grants rather than continuing support.
Contact: Judy Dunning, (802) 388-3355, *email*: jdunning@vermontcf.org

The following funds are managed by the Vermont Community Foundation.

Discretionary Grants
The Vermont Community Foundation is a philanthropic resource whose purpose is to fund projects relating to the arts and humanities, education, the environment, historic resources, health, public affairs, community development, and social services. The VCF focuses on projects that meet community needs, increase civic participation and community vitality, build

community connections, build on existing successful programs, and help nonprofit agencies build management skills. Grants range from $1,000 to $10,000, with an average of $5,000.

➤ *Potential Use at Elizabeth Mine*: The re-use of the Elizabeth Mine site meets many of the requirements for this type of funding. When identifying sources for funding for each of the proposed projects, the VCF should be contacted to get updated information on which of the list of projects they are likely to help fund.

Marketing Funding

29. Vermont Department of Tourism and Marketing

Website: http://www.travel-vermont.com/

Regional Block Grant Program
State funds distributed to Regional Development Corporations (RDCs), Regional Planning Commissions (RPCs), and regional marketing organizations (RMOs) in block grants for joint ventures in planning, economic development, and promotion. Eligible activities include heritage tourism promotion projects.
Range: Distribution by formula based on annual legislative appropriation.
Eligibility: RDCs, RPCs and RMOs
Deadline: Annual regional work plans submitted in May.
Contact: Local RMO for promotion projects, RPC for planning projects, and RDC for economic development projects.

➤ *Potential Use at Elizabeth Mine*: Grants could be garnered from this program in support of regional marketing efforts for heritage tourism, possibly building on existing historical tours that are planned to include the mine site, and other joint-marketing efforts that will be developed in the future.

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