

study of alternatives

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study of alternatives

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PROPOSED
KEWEENAW NATIONAL HISTORICAL PARK • MICHIGAN

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

22

SUMMARY

This *Study of Alternatives* provides information to Congress about the suitability and feasibility of establishing a national historical park on the Keweenaw Peninsula on Michigan's Upper Peninsula. The national park would commemorate the development of the U.S. copper mining industry from the mid 1800s through the early 1900s. The study focuses on two sites on the peninsula – the Quincy Mining Company Historic District and the Calumet Historic District, which have been designated as national historic landmarks.

The Quincy Mining Company Historic District is situated along the brow of Quincy Hill above the city of Hancock and Portage Lake in Houghton County. The mine shafts and surface works, administrative and service buildings, and company housing areas are on the top of the hill, and the Quincy smelting works are along the shoreline of Portage Lake.

The Calumet Historic District lies within the village of Calumet in Houghton County, 12 miles north of Quincy on US Highway 41. It contains mine buildings and administrative structures associated with the Calumet and Hecla Mining Company, plus commercial and residential areas within the village.

As requested by Congress, this *Study of Alternatives* identifies areas and properties that should be included in a national historical park; the cost to the federal government for establishing a park, including potential acquisition and preservation costs; management options; historical, cultural, scenic, scientific, natural, and recreational values associated with the proposed park; and hazardous waste sites within and around the park area.

The U.S. Environmental Protection Agency is engaged in a multiyear project to identify hazardous waste sites on the Keweenaw Peninsula. Until this project has been finished, no action should be taken with respect to the alternatives that include potential waste sites. If these sites were declared to be hazardous, they could not be considered for federal acquisition and public use until they were cleaned up.

Because the copper mining story extends beyond the mining areas of Quincy and Calumet, this study recommends that if a new national park unit is established, it should be named Keweenaw National Historical Park, which would more accurately represent the scope of the park.

ALTERNATIVES

Five park development alternatives are presented. Each alternative describes how resources would be preserved and interpreted for visitors, what development would be undertaken, and a range of estimated costs. The alternatives differ in the level of interpretation, the location of the facilities and activities, the type of development, and the relationship to Isle Royale National Park.

Alternative 1 – Minimal Preservation and On-site Interpretation –

Visitors would be introduced to the copper mining story at park visitor centers (one at Calumet and one at Houghton). On-site interpretation would be limited to the Quincy shaft/hoist house complex (which would be preserved) and the smelting works (which would be stabilized); walking tours would be provided at the Calumet and Hecla Mine and through the village to interpret com-

munity life and the relationship of the community to the mining company.

Alternative 2 – Increased Preservation and On-site Interpretation –

Additional opportunities would be provided for visitors to see resources firsthand and to learn about the copper mining process, particularly at Quincy. Visitor centers would be developed at Calumet and the Quincy smelting works (which would be rehabilitated for adaptive use). Interpretation at Calumet would still focus on community life. The Quincy shaft/hoist house complex would be preserved.

Alternative 3 – Moderate Preservation and On-site Interpretation –

Additional areas at Quincy and Calumet would be opened for on-site interpretation to give visitors a broader understanding of copper mining on the Keweenaw Peninsula, impacts on the environment, and miners' lives. Visitor centers would be developed at Calumet and the Quincy machine/blacksmith shop (which would be rehabilitated; buildings at the shaft/hoist house complex and the smelting works would be either stabilized or preserved). At Quincy one of the mine's housing areas would be opened to walking tours. In Calumet selected buildings in the commercial and residential areas would be rehabilitated and adaptively used.

Alternative 4 – Large-Scale Preservation and Intensive On-site Interpretation –

The emphasis would be on the development of mining technology from the 1840s through the 1960s. Visitor centers would be developed at Calumet and the Quincy machine/blacksmith shop complex. If feasible, buildings and machinery at the Quincy smelting works and the shaft/hoist house would be restored to

operating condition, and the possibility of offering underground tours would be studied. Recent mining technology would be interpreted at the Homestake Mine, where structures would be preserved. At Calumet selected structures in the commercial and residential areas would be restored as museums to more fully depict community life.

Alternative 5 – Limited Preservation and Moderate On-site Interpretation Focusing on Calumet –

Preservation and interpretive activities would be focused at Calumet. A single visitor center would be developed, and in-depth interpretation would treat the whole Keweenaw Peninsula copper-mining story, from the 1840s through the 1960s. Like alternative 4, selected structures in the commercial and residential areas would be restored as museums, and the Osceola Mine and machinery would be preserved to interpret more recent mining technology. Preservation and interpretation at the Quincy site would be limited to the shaft/hoist house complex.

Development costs would range from \$22.9 million to \$55.3 million; annual staffing and operating costs would range from \$564,600 to \$801,200.

The general impacts of implementing each alternative were evaluated in terms of increased traffic on local roads, the removal of properties from local tax rolls, demands for additional utilities and public services, and benefits to the local economy.

MANAGEMENT OPTIONS

Several approaches have been considered for managing a park on the Keweenaw Peninsula. Support has been shown at the local, state, and national levels for designating portions of the Quincy Mining Company and Calumet historic districts as a unit of the national park system. The creation of a national historical park would require legislation by Congress.

To be eligible for inclusion in the national park system, an area must (1) possess nationally significant natural, cultural, or recreational resources, (2) be a suitable and feasible addition to the system, and (3) require direct NPS management instead of alternative protection by other agencies or the private sector. These criteria are designed to ensure that the national park system includes only outstanding examples of the nation's heritage. They also recognize that inclusion in the national park system is not the only option for preserving the nation's outstanding resources.

Congress could also decide to pursue other options to ensure the preservation of the Keweenaw Peninsula copper mining re-

sources. One option would be to establish a national heritage area that would be administered by a federal commission. Additional options would be to establish an affiliated area of the national park system (with on-site management by a local entity) or a national historical reserve (with management by a special partnership of federal, state, and local governments). Other options would include either a state or local park area, with preservation and technical assistance provided by the National Park Service.

Under all alternatives an optional revolving fund for preservation assistance could be established as an incentive for local preservation efforts; a ceiling of \$15 million could be set for the fund. Also, preservation efforts by local groups would be encouraged, with technical assistance from the National Park Service.

The general public will be involved in the study process through a series of meetings where draft alternatives and potential impacts will be discussed. The final alternatives will be revised to incorporate public comments where appropriate.

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INTRODUCTION



PURPOSE OF THE STUDY

The National Park Service initiated this *Study of Alternatives* in January 1990 to provide information to Congress about establishing a national historical park on the Keweenaw Peninsula in Upper Michigan (see the Region map). This study focuses on the peninsula's two national historic landmark districts – the Quincy Mining Company Historic District and the Calumet Historic District. In August 1989 these districts were determined to be nationally significant in illustrating the development of the U.S. copper mining industry from the mid 1800s through the early 1900s.

The Quincy Mining Company Historic District is situated along the brow of Quincy Hill above the city of Hancock and Portage Lake in Houghton County (see Vicinity map). The mine shafts and surface works, administrative and service buildings, and company housing areas are on the top of the hill, and the Quincy smelting works are along the shoreline of Portage Lake.

The Calumet Historic District lies within the village of Calumet in Houghton County, 12 miles north of the Quincy district on US Highway 41. It contains mine buildings and administrative structures associated with the Calumet and Hecla Mining Company, as well as commercial and residential areas within the village of Calumet.

This study includes the following information, which was specifically requested by Congress:

- areas and properties that should be included in the park boundary
- the cost to the federal government for establishing a park, including potential acquisition and preservation costs
- management options and the relationship of a national historical park to other government programs for managing natural resources in the area
- historical, cultural, scenic, scientific, natural, and recreational values associated with the proposed park
- the identification of hazardous waste sites within and around the proposed park area (as required by U.S. Department of the Interior Secretarial Order 3127, dated December 15, 1988)

Congress also requested that a preferred alternative be selected. However, this was not accomplished because there was insufficient time to fulfill additional requirements associated with providing a recommendation, such as the preparation of an environmental impact statement.

The copper mining story includes more than the mining areas of Quincy and Calumet, and the name of the park should reflect this fact. This study recommends that if a new national park unit is established, it should be named the Keweenaw National Historical Park to more accurately represent the scope of the nationally significant copper mining story.

CRITERIA FOR PARKLANDS

The criteria for evaluating areas for inclusion in the national park system are included in the NPS *Management Policies* and the *Criteria for Parklands* (see appendix A for the excerpted text from the *Management Policies*). In addition, NPS Director James Ridenour has clarified the policies and procedures for national significance determinations in special resource studies (memorandum of July 19, 1989).

To be eligible for addition to the national park system, an area must meet the following criteria: (1) it must possess nationally significant natural, cultural, or recreational resources; (2) it must be a suitable and feasible addition to the system; and (3) it must require direct NPS management instead of alternative protection by other agencies or the private sector. These criteria are designed to ensure that the national park system includes only outstanding examples of the nation's natural, cultural, and recreational resources. They also recognize that inclusion in the national park system is not the only option for preserving the nation's outstanding resources.

NATIONAL SIGNIFICANCE

The first criterion for a potential parkland is that an area be of national significance. The director's memorandum asserts that areas that have been designated as national historic landmarks and national natural landmarks have been determined to be nationally significant and require no further analysis of significance if they are being studied for potential addition to the national park system. The Quincy Mining Company Historic District and the Calumet Historic District were designated

as national historic landmarks in August 1989.

SUITABILITY

To be suitable for inclusion in the national park system, an area must represent a natural or cultural theme or type of recreational resource that is not already adequately represented in the national park system or is not comparably represented and protected for public enjoyment by another land-managing agency.

Both the Calumet and Quincy Mining Company historic districts qualified as national historic landmarks under the following themes, subthemes, and facets:

Theme XII – Business

- A. Extractive or Mining Industries
- 3. Other Metals and Minerals

Theme XVIII – Technology (Engineering and Invention)

- F. Extraction and Conversion of Industrial Raw Materials

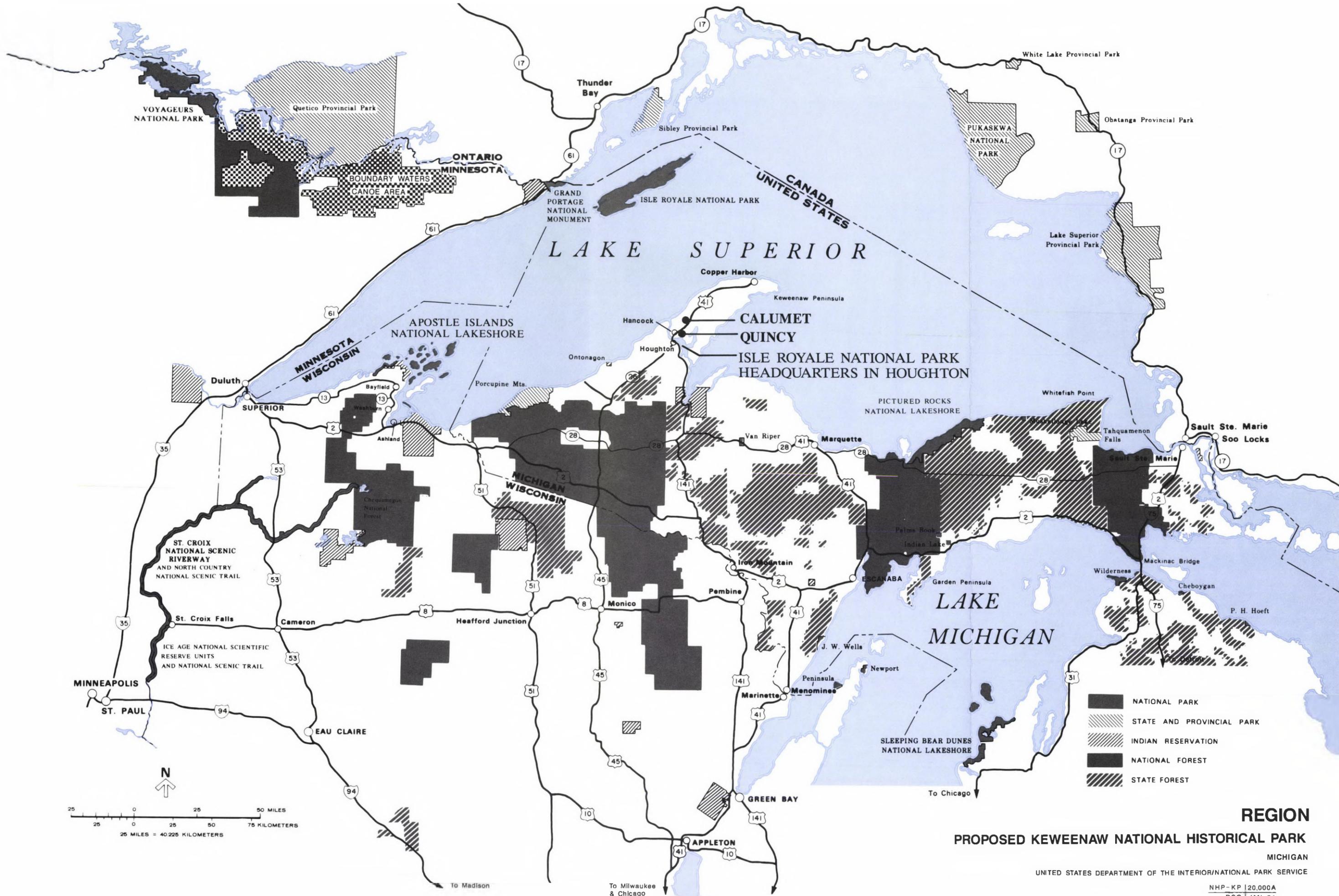
Neither of these themes is represented by an existing national park system unit. In addition the Calumet Historic District represents the following theme and subthemes:

Theme XXX – American Ways of Life

- C. Industrial Towns
- D. Ethnic Communities (including the immigration phenomenon)

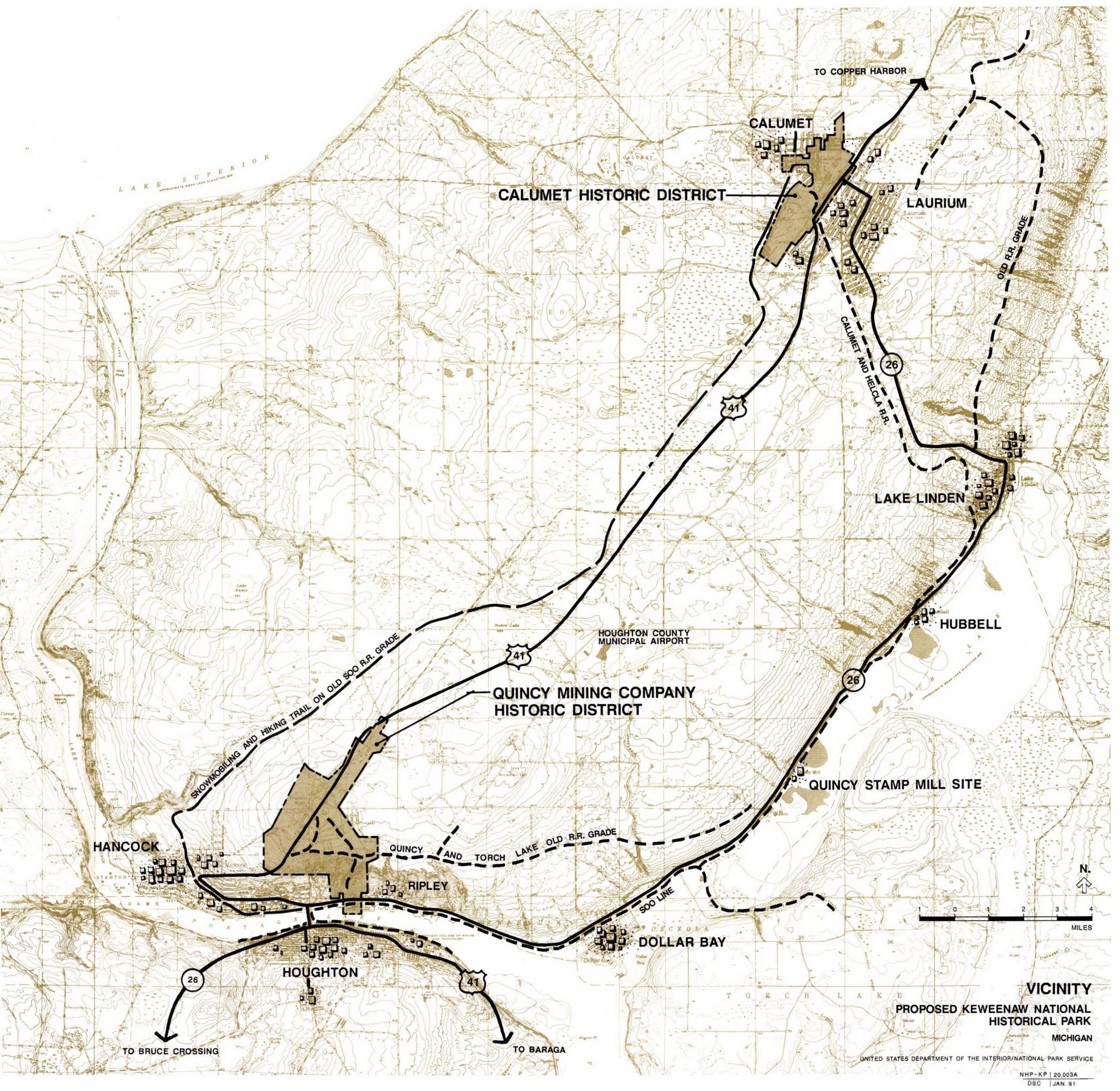
Each of these subthemes is represented by existing national park system units (see table 1).

In addition, the scenic, scientific, natural, and recreational values associated with a proposed park were evaluated. Resources



REGION
PROPOSED KEWEENAW NATIONAL HISTORICAL PARK

MICHIGAN
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CALUMET HISTORIC DISTRICT

LAURIUM

LAKE LINDEN

HUBBELL

QUINCY MINING COMPANY HISTORIC DISTRICT

QUINCY STAMP MILL SITE

HANCOCK

RIPLEY

DOLLAR BAY

HOUGHTON

VICINITY
PROPOSED KEWEENAW NATIONAL HISTORICAL PARK
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TABLE 1: THEME REPRESENTATION

THEME	REPRESENTED BY	EXISTING NATIONAL PARK SYSTEM REPRESENTATION
THEME XII – BUSINESS		
A. EXTRACTIVE OR MINING INDUSTRIES		
3. OTHER METALS AND MINERALS	<ul style="list-style-type: none"> • Quincy Mining Company • Calumet 	None
THEME XVIII – TECHNOLOGY (ENGINEERING AND INVENTION)		
F. EXTRACTION AND CONVERSION OF INDUSTRIAL RAW MATERIALS	<ul style="list-style-type: none"> • Quincy Mining Company • Calumet 	None
THEME XXX – AMERICAN WAYS OF LIFE		
C. INDUSTRIAL TOWNS	<ul style="list-style-type: none"> • Calumet 	Lowell National Historical Park
D. ETHNIC COMMUNITIES (INCLUDING THE IMMIGRATION PHENOMENON)	<ul style="list-style-type: none"> • Calumet 	Boston African American National Historic Site Castle Clinton National Memorial Lowell National Historical Park Maggie L. Walker National Historic Site Martin Luther King, Jr., National Historic Site Statue of Liberty National Monument (Ellis Island) Touro Synagogue National Historic Site (an affiliated area) Tuskegee National Historic Site

on the peninsula were inventoried, including each national historic landmark. Tourist information was reviewed, and discussions were held with representatives from state and local agencies.

The primary conclusion was that the historic resources of each landmark are nationally significant in terms of mining development, and the midcontinent rift system and the native copper deposits on the Keweenaw Peninsula are potential nationally significant natural resources.

However, the recreation resources lack national significance. The National Park Service does not believe recreational activities are needed to support the primary function of a historical park, especially when those activities are available locally in the surrounding communities.

FEASIBILITY

To be feasible as a new unit of the national park system, an area's natural systems or historic setting must be of sufficient size and appropriate configuration to ensure long-term protection of the resources and to accommodate public use. It must have potential for efficient administration at a reasonable cost. Important feasibility factors include landownership, acquisition costs, access, threats to the resources, and staff or development requirements.

Both the Quincy Mining Company and Calumet historic districts are large enough to allow for long-term resource protection and to accommodate public use.

Currently, both districts are privately owned. The no. 2 shaft/hoist house complex at the Quincy Mine has been leased by the Quincy Mine Hoist Association, which has preserved the resources and provides public tours. The rest of the Quincy Mine site is closed to public use, and resources are not being preserved.

Within the Calumet Historic District the former pattern shop of the Calumet and Hecla Mine is being operated as the Coppertown U.S.A. Museum; the rest of the property is owned by various entities, who provide some degree of resource protection.

Some resources are already being lost because the owners lack the funds to maintain the structures, and in other cases maintenance has been done without consideration for the historical significance or integrity of the building. Also there is little incentive and direction available for investment in historic structures. Many structures are rapidly approaching critical stages in terms of preservation and maintenance (for example, the Union Building, St. Anne's Church, and the Norwegian Lutheran Church). Without some sort of incentive for historic preservation, the historic resources are expected to deteriorate at an increasing rate, which would eventually result in loss of integrity to the national historic landmarks as a whole.

Acquisition costs for all properties in both districts would be prohibitively expensive. The five park development alternatives considered in this document outline boundaries, development, and costs that could feasibly be undertaken by the National Park Service.

Strong community support has been demonstrated for the National Park Service to assume some type of management role at both national historic landmarks. However, it must be emphasized that the Park Service does not necessarily support the establishment of a national historical park at this site, in that other management options may be equally as effective in protecting the historic resources.

SCOPE OF THE STUDY

This *Study of Alternatives* builds on previous work conducted by the National Park Service to manage historic copper mining resources on the Keweenaw Peninsula (NPS 1988), and it presents alternatives for establishing a national historical park. Such a park generally includes a variety of resources that can be interpreted to help visitors learn about a particular facet of our nation's history and to relate it to the present.

To determine what interpretive story could best be told by sites on the Keweenaw Peninsula, a study team evaluated how buildings and landscapes might be used to illustrate the copper mining story. The team then analyzed the potential impact of adjacent land uses, access, views, and other factors on the nature, type, and locations of possible visitor activities and facilities. Based on this analysis, the areas most suited for park activities were identified, as well as potential constraints for establishing a park (see the "Analysis of Resources" section). This analysis is preliminary, and complete information on current uses of buildings and lands needs to be obtained. It is not known at this time if current owners would be willing to sell their properties for the purposes of establishing a national historical park.

The next step was to define different ways to develop, package, and connect the resources to tell the story of Michigan copper mining. Five park development alternatives were evaluated (see the "Park Development Alternatives and Management Options" section). The alternatives are distinguished by the resources selected for development, the type of development, and the level of interpretation. Preliminary cost estimates for development and annual operations are also identified.

The general impacts of implementing each alternative were evaluated in terms of increased traffic on local roads, the removal of properties from local tax rolls, demands for additional utilities and public services, and benefits to the local economy.

Options were also developed for various management strategies. These strategies include participation by the National Park Service, state and local governments, and the private sector. The possible establishment of a preservation assistance fund to help finance private restoration efforts is also considered.

IDENTIFICATION OF HAZARDOUS WASTES

The U.S. Environmental Protection Agency is engaged in a multiyear project to identify hazardous waste sites on the Keweenaw Peninsula. Until the Environmental Protection Agency has finished assessing hazardous wastes, no action should be taken on the alternatives that include potential waste sites. If these sites were declared to be hazardous, they would have to be cleaned up before they could be acquired by the federal government, and the alternatives would have to be revised accordingly.

PUBLIC INVOLVEMENT

The general public will be involved in the study process through a series of meetings where draft alternatives and potential impacts will be discussed. The final alternatives will be revised to incorporate public comments where appropriate.

**A DESCRIPTION OF RESOURCES
AND THE ENVIRONMENT**



SIGNIFICANCE OF RESOURCES

MICHIGAN'S COPPER COUNTRY

The Keweenaw Peninsula is approximately 50 miles long and 15 miles wide. It lies at the northernmost tip of mainland Michigan and juts out into Lake Superior. The copper range forms a narrow spine down the peninsula, with copper occurring in a pure metallic state, unalloyed with other elements. The Keweenaw Peninsula and Isle Royale are geologically identical.

The remains of hundreds of ancient diggings suggest that copper deposits on Isle Royale and on the Keweenaw Peninsula were excavated in prehistoric times. Algonquin and Chippewa Indians valued items made from the red metal, and one of the Algonquins' gifts to Samuel Champlain in 1608 was a chunk of solid copper. But European explorers were seeking gold and silver, not copper.

In 1840 Douglass Houghton, Michigan's first state geologist, systematically explored the Lake Superior region and found evidence of extensive, commercially viable copper deposits. However, he cautioned that skill, money, and organization would be required to profitably exploit the region's copper deposits.

The First U.S. Mining Boom

The publication of Houghton's report, despite its statement of the inherent difficulties in mining copper, touched off a boom in the early 1840s – the first in the United States. Towns soon sprang up at Copper Harbor, Eagle Harbor, Ontonagon, and many other smaller ports on Lake Superior. By 1849 over 1.5 million pounds of copper had been produced on the Keweenaw Peninsula, amounting to 85 percent of the entire U.S. production.

The first mines were developed on fissure deposits, which contained pure copper that was easily extracted. Fissure mines such as the Cliff and Minesota took copper from the richest deposits ever discovered. However, these surface deposits extended for only a few hundred feet and could not sustain long-term operations.

Technological Innovations

The region's most productive and profitable mineral deposits proved to be the amygdaloid and conglomerate lodes in the central portion of the copper range. Amygdaloid lodes consist of rocks in which copper is deposited in pockets of irregular shape and size. The copper is extracted by stamping the rock to a sandlike consistency and separating out the pieces of pure metal. Conglomerate lodes are comprised of boulders, gravels, and sands cemented together by copper. Extracting copper from amygdaloid and conglomerate lodes requires both intensive labor and capital investment.

In the late 1850s the Quincy Mining Company was the first company to assemble the capital and the expertise needed to exploit amygdaloid copper deposits. In the 1860s the Calumet and the Hecla mining companies began working the Calumet conglomerate lode 12 miles to the north.

During the Civil War the Keweenaw Peninsula's economy boomed; copper jumped from 17.5 cents a pound in July 1861 to 55 cents a pound in July 1864 – an all-time high. The Quincy Mining Company ranked first in national production between 1862 and 1868, supplying the raw material for brass buttons, copper canteens, bronze cannon, and copper sheathing for naval vessels. Once the Calumet and Hecla mines went into production after 1867, the

United States increased its output to 17 percent of world copper production, and Michigan accounted for 12 percent of the world total.

Of the more than 400 copper mining companies that operated on the Keweenaw Peninsula during the latter half of the 19th century and the early part of the 20th, only the Quincy Mining Company and the Calumet and Hecla Mining Company mined more or less continuously after the initial boom had passed.

Competition with Western Mines

By the mid-1880s, western U.S. copper mines began to challenge Michigan's leadership in copper production. In 1883 Michigan's average share of U.S. copper production had dropped from 80 percent to 51.6 percent. Although copper mining continued into the mid 20th century, the Keweenaw mines could never again surpass the western mines.

Significance

Several sites related to copper mining on the Keweenaw Peninsula remain today – the Cliff Mine site, the first of the great Michigan copper mines; the Quincy Mining Company properties, including the Franklin and Pewabic mines; the Calumet and Hecla Mining Company and the adjacent village of Red Jacket (the present village of Calumet); and the Champion Mine of the Copper Range Company, along with its company town of Painesdale.

Of these properties, those associated with the Quincy Mining Company and the Calumet and Hecla Mining Company collectively represent the major elements of the Michigan copper industry – mining and mining technology, immigration and ethnic settlement, paternalism and company

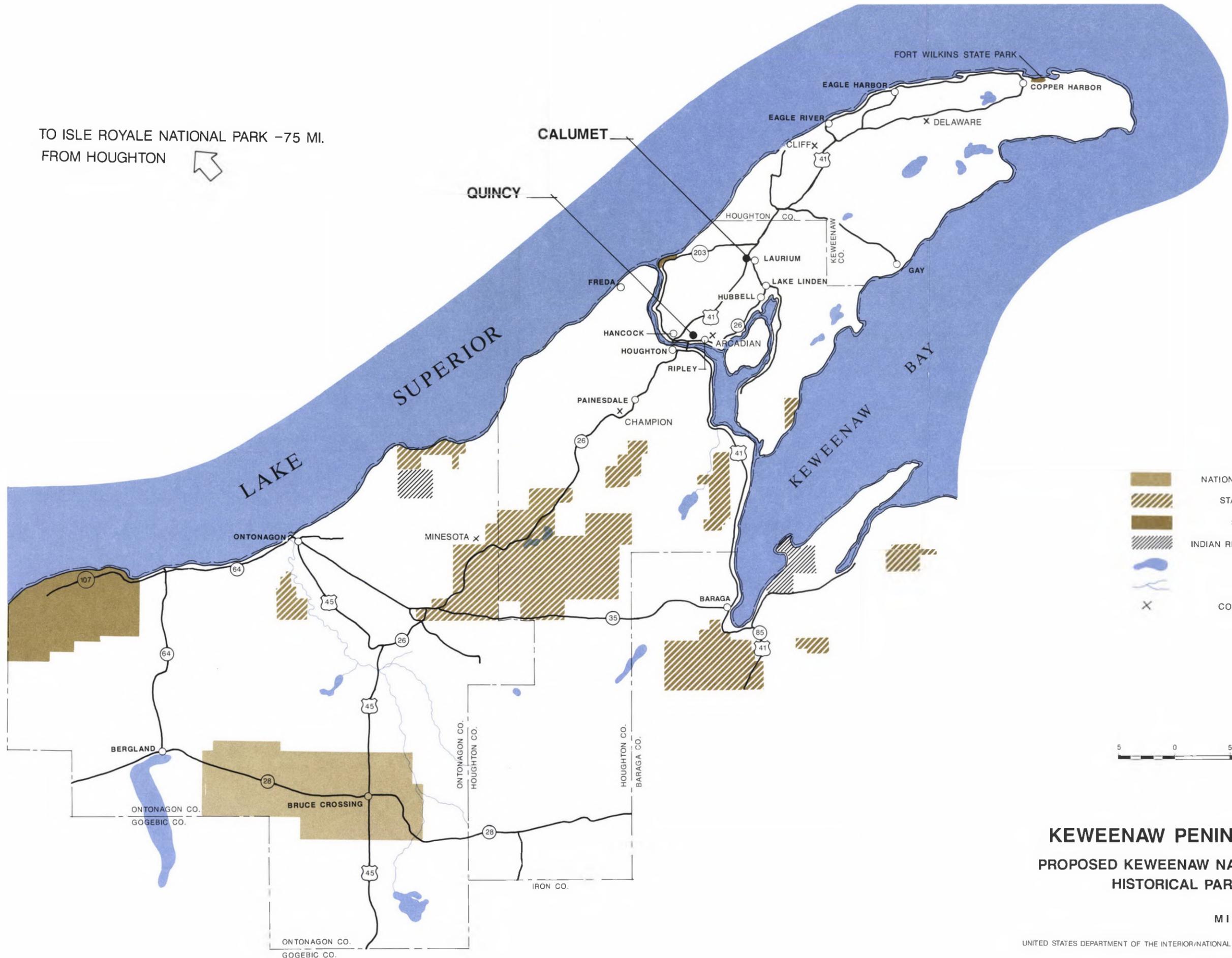
towns, and labor organization. These mines also represent the longest period of production, technical innovation, and influence on Michigan copper mining, and particularly on U.S. copper mining from 1867 to 1882.

In 1987, the Midwest Regional Office of the National Park Service began a national historic landmark theme study to determine if any of the copper mining resources on the Keweenaw Peninsula were of national significance. This study resulted in the designation of the Quincy Mining Company and the Calumet historic districts. In August 1989 both sites were designated as national historic landmarks.

QUINCY MINING COMPANY HISTORIC DISTRICT

The Quincy Mining Company represents the growth and development of the U.S. copper industry from 1848 through 1920. Of the numerous mining ventures begun in Michigan in the 1840s, Quincy was the only one to survive. It was the first company to recognize the limits of fissure mining and shift to amygdaloid lodes. The company earned the title "Old Reliable" for paying dividends to its stockholders 54 years in a row, and for its ability to continue mining during economically difficult times when all but the giant Calumet and Hecla had shut down. After 1868 the Quincy mine could not match the output of the Calumet and Hecla, but it remained second in U.S. production until the 1880s.

The Quincy Mining Company was a leader in mining technology, adapting the specialized technology of hard-rock mining to meet the problems associated with working the deepest inclines in the district. It was the first company to consolidate the European processes of breaking, sorting, and cleaning the rock at the spot where it



**KEWEENAW PENINSULA
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was dumped from the skips. The shaft/rockhouse, which the Quincy introduced in 1873, served as a model for the Michigan copper industry.

Quincy also led the industry in the technology of bringing rock out of the mine, and it used some of the largest steam engines in the United States. In 1917 Quincy ordered its largest compound, condensing steam hoist from the Nordberg Manufacturing Company. The hoist operated at 3,200 feet per minute and could lift 10 tons of rock per trip; it was one of the largest steam hoisting engines in the world. The engine, along with its condensing equipment, remains in the no. 2 hoist house, which was specially constructed for it.

The construction of the Quincy smelting works in 1898 represented a significant development in the growth and autonomy of the company. Typically, mining companies would contract with independent smelting companies to process their ore because the expense of erecting and operating such a plant was not an economical investment for the mining companies. However, Quincy's output warranted such a facility, and in 1898 a smelter was built on Portage Lake at the foot of Quincy Hill. The two most important components were the reverberatory and cupola furnaces, which were used to recover copper, first from rock and then from slag. In 1920 a revolving Walker casting machine was added, mechanizing the old hand-ladling process.

The strike of 1913 seriously weakened the Quincy Mining Company, even though the owners were victorious. The demand for copper during World War I temporarily enabled the company to improve its position, but finding copper ore at a reasonable cost became increasingly difficult. During the 1920s the company dug deeper mines and mechanized most of its operations. By 1931 the no. 2 shaft reached

a depth of 9,009 feet – the deepest mine in the United States.

In 1931 copper prices fell as a result of the Great Depression, and operations at Quincy ceased. Although the company geared up again after 1937 in response to rising copper prices and then the demands of World War II, its boom years were over. To supplement waning mine productivity, in 1943 Quincy opened a reclamation plant on Torch Lake to process ore from the mill stamp sands. The plant was designed and built by the C & H Consolidated Copper Company. When the C & H smelter in Hubble could no longer process the Quincy mineral, the Quincy smelter (idle since 1931) was reopened. In 1957 mining operations ceased, although the reclamation plant and smelting works continued to produce copper for another 10 years.

After the mine closed, the Quincy properties were transferred to the Quincy Development Corporation. In 1962, a local organization, the Quincy Mine Hoist Association, was formed to preserve and interpret the shaft/rockhouse (1908), the Nordberg hoist (1920), and the hoist house (1920), all of which serve the mine's no. 2 shaft. The Quincy Mine Hoist Association obtained a 99-year lease on these structures.

One of the last significant accomplishments was a 1976 joint venture between the Quincy Mining Company and the Homestake Mining Company. Quincy agreed to contribute up to \$425,000, and Homestake agreed to provide engineering, labor, and equipment. A new hoist and headframe were erected at the no. 8 shaft in order to conduct exploratory drilling. The exploratory work did not discover any economically exploitable deposits of copper.

CALUMET HISTORIC DISTRICT

The discovery and extraction of the rich Calumet conglomerate lode was the most important development in both Michigan and U.S. copper mining between 1867 and 1884. During these years the Calumet and Hecla (C & H) Mining Company alone contributed over half of the nation's total copper output, and from 1880 to 1900 the company paid \$57 million in dividends.

The company lost its lead as the major U.S. copper producer in the 1880s, having been overshadowed by the new western copper mines. But by the early 20th century the company had consolidated and diversified, enabling it to once more compete with its large western rivals. C & H's high production figures and financial success reflect the technological innovations and industrial developments that made it possible to successfully exploit the conglomerate lode.

The first traces of the rich Calumet conglomerate lode were found in the 1850s by Edwin J. Hulbert. Hulbert established his claim as two separate mining companies – the Calumet Mining Company to the north of Red Jacket Road, and the Hecla Mining Company to the south.

To raise capital to develop the mines, Hulbert solicited money from Boston investors. Hulbert's promising beginnings were quickly tarnished as rumors of his unorthodox approach toward mine development and constant requests for additional funds reached the Boston stockholders. In 1866 Alexander Agassiz was sent to assess the situation. Agassiz replaced Hulbert as mine manager, and the Calumet and Hecla mines were merged in 1871, becoming the Calumet and Hecla Mining Company. (The shafts continued to retain their separate designations as either Calumet or Hecla after the merger.)

Initially the C & H used existing technology and systems, but under Agassiz the best engineers available were brought in to help meet the technical challenges of mining the conglomerate lode. Methods were quickly introduced to efficiently mine at great depths and to exploit deposits that previously had little economic value.

To support its mining operations, C & H built a surface plant recognized as the largest and most efficient in the nation. The plant received copper rock, gave it a preliminary break, and shipped it to the stamp mill. A host of shops could supply virtually all the mine's maintenance, repair, and fabric work. The company deliberately overbuilt, intending that the plant standing at the mine in 1900 would serve until the conglomerate lode was exhausted.

C & H adopted steam power almost immediately. In 1881, 16 stationary steam engines powered mine machinery; by the late 1890s, at least 50 steam engines were in service at the mine, plus additional engines at its mills in Lake Linden.

Immigrant labor made C & H's immense profits possible. Agassiz opposed the traditional concept of company stores and allowed somewhat more freedom than did other mining companies. The company encouraged the development of the commercial district of Red Jacket across from the mine buildings. It also provided adequate, low-cost housing for its workers. By 1898 C & H owned some 1,000 dwellings, and an equal number of employee-built houses stood on company land. The company's fire department served the communities as well as the mines, and its waterworks pumped water to employee houses.

C & H provided far more than housing. The company built 10 schools, a public library, community bath and shower facilities, bowling alleys, a swimming pool, and a hospital. The company also made large

donations so that churches could be built for various ethnic groups.

In 1923 the Calumet and Hecla Mining Company reincorporated to consolidate its numerous mining properties, and it became known as the Calumet and Hecla Consolidated Copper Company. As the copper content of the rock diminished with the depth of the mines, the company began to look for other means to turn a profit. It concentrated its efforts on capturing larger quantities of copper in the milling process, extracting ore from amygdaloid rock in new mines, and reclaiming copper from mill stamp sands.

Mining operations were finally suspended in 1968, and the C & H properties were purchased by Universal Oil Products and then by the Lake Superior Land Company. The present owner is currently managing some of its land for forestry and is platting and selling other portions.

The most prominent local organization helping to preserve and interpret the mining heritage of Calumet is Coppertown U.S.A. This group is using the former C & H pattern shop as a museum that is primarily open in the summer and is staffed by volunteers. The entire Michigan copper district is interpreted through several displays, with emphasis on the Calumet and Hecla Mine.

SOCIAL HISTORY

Michigan's copper mines relied on immigrant laborers, who began coming to the United States in the 1840s. The first immigrants to arrive during the 1840s copper rush were from Cornwall, England, and early Michigan mining practices and culture were virtually transplanted from the copper and tin mines of Cornwall.

By the 1860s the Cornish had been joined by immigrants from Ireland, Germany, and Quebec. By the 1870s Swedes, Norwegians, and Italians were present, and the 1880s brought sizable numbers of Polish, Slovenian, and Croatian groups, as well as a large influx of Finns.

The various ethnic groups lived in company housing or in nearby communities, and names such as Limerick, Sing Sing, and Frenchtown reflected the ethnic origins of the residents. As an example of the multinational work force, in 1870 Calumet Township's population was 3,182, of whom 2,051 were foreign-born. In 1903 Calumet had eight foreign language newspapers, five in Finnish. Churches, social halls, bars, and houses were clustered within a few blocks of the mines. In this tight web, the various ethnic groups delineated their social and physical boundaries.

A job hierarchy quickly developed along ethnic lines, and the most recent immigrants, particularly the Finns and Italians, were hired for the most laborious and low-paying jobs. This had a direct bearing on deteriorating labor relations in the early 1900s, culminating in the strike of 1913, which hastened the demise of the Western Federation of Miners, one of the strongest unions in the nation. The strike lasted for nine months and was marked by violence and catastrophe. In one particularly tragic event 73 children were crushed to death trying to escape a nonexistent fire at a Christmas Eve party. The mining companies refused to hire any union members, and thousands of strikers left the area, to be replaced by nonunion workers.

Today, the heritage of this remarkable ethnic conglomerate is reflected by the neighborhoods, surnames, foods, and traditions of residents on the Keweenaw Peninsula.

NATURAL RESOURCES

TOPOGRAPHY

The topography of the Keweenaw Peninsula is moderate, and features such as moraines, drumlins, and outwash plains are of moderate relief. Erosion has only slightly modified this glacial topography.

The mean elevation of Lake Superior is 602 feet. Elevations on the Keweenaw Peninsula range from 1,490 feet near the northeast end of the peninsula, to 2,021 feet in the Porcupine Mountains, the highest point on the Upper Peninsula.

The topography of the Calumet area shows very little change in elevation. At the Quincy mine the northwestern half of the site is of moderate relief, but the elevation drops quickly to the level of Portage Lake in the southeastern section.

GEOLOGY AND SOILS

The peninsula's most prominent geologic feature is a 4- to 12-mile wide central highland rising 700 feet above Lake Superior and extending from the southwest to the northeast. This ridge forms the copper range and represents a spectacular and well-exposed example of the 1.1 billion-year-old midcontinent rift system. The rocks of this system are only exposed in the western Lake Superior region, with the best exposures on the Keweenaw Peninsula and Isle Royale.

Native copper deposits on the Keweenaw Peninsula are concentrated within the central ridge. They are the only major example in the nation of an economically important concentration of copper without sulfur.

Soils around the Calumet and Quincy historic districts range from muck soils (with moderate permeability, high available water capacity, and very slow runoff) to sandy loams (slow to moderately rapid permeability, low available water capacity, and slow runoff). The Quincy site also contains sandy soils (rapid permeability, low available water capacity, and slow runoff). The major management concerns associated with soil types are limitations on equipment due to wetness or loose sand, windthrow hazards, and plant competition.

No prime or unique farmlands are present in Houghton or Keweenaw County.

Mine dumps consisting of piles of poor rock (rock hauled to the surface but not milled) occur at both sites. Some of this rock is used as roadfill or rip-rap, or is crushed for use as road gravel.

FLOODPLAINS, WETLANDS, AND SAND DUNE AREAS

No portions of the Calumet and Quincy historic districts lie within a floodplain.

Wetlands are abundant throughout the Keweenaw Peninsula. Seven separate wetland sites are scattered throughout the Quincy Mining Company Historic District, and four wetlands occur along the undeveloped western edge of the Calumet Historic District. All sites are of the palustrine type. Palustrine emergent wetlands have greatly declined throughout the nation and should be considered a high priority for acquisition and protection. (Specific descriptions of wetlands are included in appendix B.)

Several areas of critical sand dunes within Keweenaw County have been identified by the Michigan Department of Natural Resources. However, none of these areas occurs within the Calumet or Quincy historic districts.

CLIMATE

The climate of the Keweenaw Peninsula can be described as continental temperate, with warm summers and cold winters. The Great Lakes moderate temperatures. The mean daily temperature for January is 18° F; April, 40° F; July, 64° F; and October, 48° F.

During the last 10 years, total annual precipitation has averaged approximately 40 inches. The average annual snowfall exceeds 180 inches, with the snow cover lasting about 150 days.

VEGETATION

The Canadian coniferous forest dominates the northern part of the Keweenaw Peninsula. It is characterized by balsam fir, white spruce, and paper birch.

The areas in and around the Calumet and Quincy historic districts were stripped of vegetation during the copper mining years, but they have been revegetating since the end of copper mining in the late 1960s. They are now covered with young trees and abundant shrubs and grasses.

WILDLIFE

Extensive natural areas on the Keweenaw Peninsula are inhabited by a variety of wildlife. Large mammals include white-tailed deer, moose, and bear. Other common mammals include the bobcat, coyote, red fox, skunk, weasel, pine

marten, mink, otter, hare, beaver, muskrat, porcupine, and woodchuck, plus numerous species of ground- and tree-dwelling rodents. The area also supports a variety of reptiles and amphibians.

THREATENED OR ENDANGERED SPECIES

All species listed by the federal government or the state as threatened or endangered, or candidates for such listing, are named in appendix C. Areas of critical habitat are also identified.

AIR QUALITY

Air quality is monitored on Isle Royale (Keweenaw County), which is a class I air quality area. No other air quality monitoring is conducted throughout the three-county area. However, no problem with air quality appears to exist, and air quality is presumed to comply with state standards.

WATER RESOURCES AND QUALITY

Numerous streams and rivers are found on the peninsula. No major waterways traverse the Calumet or Quincy historic districts; the Quincy smelting works is adjacent to Portage Lake.

Except for Torch Lake and associated waters used as dumping sites for copper mill stamp sands, water quality throughout the peninsula generally appears to be excellent. At Torch Lake water quality is uncertain. The Environmental Protection Agency is conducting studies to determine if these waters have been contaminated by the stamp sands and other chemicals used in the milling of copper (see "Hazardous Waste" below).

HAZARDOUS WASTE

Asbestos was commonly used in the insulating materials for steam equipment when the mines and smelter were operating. Drawings of the mine sites also identify underground steam pipes in utility trenches. The presence of asbestos in buildings, equipment, pipes, and underground trenches has not been tested. To detail the kinds of hazards present and the costs to clean them up, an asbestos management plan would have to be prepared by a certified asbestos management planner and inspector (qualified personnel for such tasks are not available at the Denver Service Center).

Such a plan includes an inspection report, a management plan, and laboratory results. The inspection report contains location drawings showing where bulk samples were taken, written and photographic descriptions of each sample area, and lab test reports. The management plan would assess the hazard, make recommendations for dealing with the hazard, and estimate costs for abatement. Full lab results would be appended to the document.

Federal Hazardous Waste Sites

Torch Lake, which is on the Keweenaw Peninsula in Houghton County, was the site of milling and smelting facilities and a dump for copper mining and milling wastes for over 100 years. More than half of the 10.5 billion pounds of copper produced on the peninsula were processed along the shores of Torch Lake.

Milling consisted of extracting copper ore from mined rock by stamping the rock into small pieces and separating the ore from the rock through gravimetric sorting. The leftover crushed rock particles, called stamp sands or tailings, were discarded

with the mill-processing water by pumping the mixture into Torch Lake. The milling process was inefficient, and copper was lost in the discarded stamp sands.

In later years technological advances allowed copper to be recovered from the previously deposited stamp sands. Dredges collected the sands, and an ammonia leaching process was used to recover copper and other metals. After reprocessing, the chemically treated stamp sands were returned to the lake. From the 1860s to 1968 over 200 million tons of tailings were dumped into Torch Lake, taking up at least 20 percent of the lake's original volume and producing drastic changes in the shoreline.

In the 1970s the high concentrations of copper and other heavy metals in the lake water or sediments, toxic discharges, and fish abnormalities prompted many investigations into the long- and short-term impacts attributed to mine waste disposal. In June 1988 the U.S. Environmental Protection Agency placed Torch Lake on the national priority list for cleanup under the Comprehensive Environmental Response, Compensation and Liability Act (commonly known as the Superfund). A federal remedial investigation and feasibility study were initiated at the site in October.

Contaminants of concern include copper, arsenic, chromium, lead, and zinc, plus the chemicals used in flotation reprocessing (pyridine oil, coal-tar creosotes, wood creosotes, pine oil, and xanthates). In addition, drums of unknown contents are present in the tailings and submerged in Torch Lake. Asbestos, metals, and PCBs associated with reprocessing debris may also be present. Release mechanisms for these contaminants include dust emissions, runoff, and erosion from stamp sands; infiltration from soil and through sediments; and leaks from the drums. The potential contaminant transport pathways

to receptors involve air, groundwater, surface water, and sediments.

The Environmental Protection Agency has identified three sites for investigation of toxic contaminants. Site I includes the primary contaminant sources of surface tailings and drum contents on the western shore of Torch Lake. Site II contains other potentially contaminated media in the primary study area, including soil, air, surface water, Torch Lake's submerged tailings, sediment, groundwater, and biota. Site III includes other contaminant sources from tailings in the mid Keweenaw Peninsula, including the North Entry, the northern portion of Portage Lake, and tributary areas.

The EPA field investigation for site I was performed in 1989 and consisted of survey and sampling of surface tailings and drums in the primary study area and preliminary soil sampling of residential backyards. Air monitoring and sampling was conducted by the Michigan Department of Natural Resources at the primary study area to assess potential receptor exposure to air contaminants. EPA field investigations for sites II and III will include sampling and analysis of sediment surface water and groundwater (site II was scheduled for 1990) and sampling of tailings from 12 locations in Houghton County (site III).

The latter field investigation will include the Quincy and Calumet historic districts. Piles of poor rock are found at both sites. Slag from copper ore smelting and stamp sands used as fill material are present at the Quincy smelter along Portage Lake. All of these substances (poor rock, slag, and stamp sands) will be sampled and analyzed during the investigations of sites II and III.

A draft remedial investigations report for site I has been forwarded by the Environmental Protection Agency to the National

Park Service. However, information in the report is incomplete, and no conclusions are offered. A final site report will be forthcoming, while final reports for site II will be completed by May 1991 and for site III by March 1991.

EPA officials stress that no decisions can be based on the presence or extent of hazardous wastes at the study sites until the final reports have been released. Therefore, it will not be known until the investigations have been completed and the final reports submitted whether substances present at the historic districts are indeed toxic, whether associated health risks exist, and whether these materials need to be removed.

State Hazardous Waste Sites

Thirteen sites in Keweenaw, Houghton, and Ontonagon counties have been placed on the proposed priority list of environmental contamination that has been prepared in accordance with the Michigan Environmental Response Act (Public Act 307). This act provides for the identification, risk assessment, priority evaluation, and remedial action funding of environmental contamination sites that are not eligible for remedies under the federal program.

The release points for seven of the sites are domestic landfills, two are underground gas tanks, two are salt piles, one is a storage pit for petroleum, and the last, at Calumet Air Force Station, is unknown. One of the sites within the Calumet Historic District is an underground gas tank from the former Elm Street gas station. No sites are present in the Quincy Mining Company Historic District. The sites are described in appendix D.

REGIONAL ECONOMIC AND DEMOGRAPHIC PROFILE

The economy of Michigan's Upper Peninsula, of which the Keweenaw Peninsula is representative, is a paradox. Unlike most rural areas, it is diversified, its workforce is well-educated, and average earnings are high, yet the peninsula remains heavily dependent on the lumber and mining industries. To a large extent its economy functions independently of the economy of lower Michigan and has its own high and low periods.

During the 1970s, when the heavily industrialized lower portion of the state was going through a recession and economic instability, employment on the Upper Peninsula grew as much as 25 percent in government, retail, and manufacturing. Wage and salary employment peaked in 1979 at 98,400. Between 1979 and 1983, however, the Upper Peninsula's economy entered a recession, and one third of the jobs gained the previous decade were lost. Wage and salary employment fell by 6.6 percent. The sectors suffering the greatest losses were mining, durable manufacturing, and government.

Since 1983 the Upper Peninsula has recovered its overall job losses. But growth in the 1980s is different from what occurred in the 1970s. Mining accounts for only half its average level in the 1970s, and state fiscal problems have greatly reduced government employment. The retail and service sectors are leading sources of new jobs, driven in part by expanding tourism. Principal employers in the three counties of the Keweenaw Peninsula – Houghton, Keweenaw, and Ontonagon – are shown in table 2.

The unemployment rate of the Upper Peninsula has fallen steadily – from 15.1 percent in 1985, to 13.4 percent in 1986, 10.6 percent in 1987, and 8.8 percent in 1988. Keweenaw County is the only one in the three-county area with an unemployment rate higher than the state average. However, except for Ontonagon County, employment has been increasing on the Keweenaw Peninsula.

Population growth in the late 1980s reflects the growth experienced prior to the

TABLE 2: PRINCIPAL EMPLOYERS

	<u>EMPLOYEES</u>	<u>TYPE OF BUSINESS</u>
<u>Houghton County</u>		
Michigan Technological University	2,000	Education
Upper Peninsula Power	589	Utility
D&N Savings Bank	404	Financial services
Mead Corporation	175	Lumber
Calumet Electronics	95	Electronics manufacturing
Horner Flooring	81	Wood flooring
<u>Keweenaw County</u>		
Isle Royale National Park	150	National park system area
Rensen Products	60	Copper rolling
Superior Crafts	20	Wood furniture
<u>Ontonagon County</u>		
Copper Range Company	900	Copper
Stone Container, Inc.	310	Corrugated paper
Lakeshore, Inc.	40	Pontoons

1970s. The state's population is expected to grow to 10 million by 2010, an increase of 8.4 percent since 1980. The Upper Peninsula is expected to grow more slowly, with an average rate of 5.3 percent between 1980 and 2010. The Keweenaw Peninsula, however, is projected to decline in population during this period (see table 3).

TABLE 3: POPULATION

	<u>Houghton</u>	<u>Keweenaw</u>	<u>Ontonagon</u>
1970 Census	34,652	2,264	10,548
1980 Census	37,872	1,963	9,861
1988 Estimate	39,400	2,000	9,100
2010 Projection	38,000	1,400	8,800
1980 Median Age*	28.6	45.5	34.9
<u>Labor Force (1988)</u>			
Total	14,325	650	3,600
Employed	13,325	550	3,325
Employment change (1980-88)	6.0%	52.0%	-20.0%
Unemployed	7.0%	16.1%	7.5%

* State median age is 28.8 years.

Travel and tourism are important to the economy of Michigan and the Upper Peninsula. U.S. travelers spent more than \$7.6 billion in Michigan during 1986, and nearly \$600 million on the Upper Peninsula, or about 8 percent of the statewide total (see table 4). The U.S. Travel Data Center estimates these expenditures generated payrolls of about \$158 million and 14,955 jobs.

Mackinac and Marquette counties are the greatest beneficiaries of tourism on the Upper Peninsula, ranking 7th and 8th in total travel expenditures in the state, while Houghton, Ontonagon, and Keweenaw ranked 41st, 68th, and 74th, respectively. These are conservative estimates by the U.S. Travel Data Center and do not take into account indirect and

induced effects of tourist spending. Consequently, the total economic impact of tourism is greater than that shown in table 4.

ACCESS AND CIRCULATION

The Keweenaw Peninsula is remote from the major population centers of the Midwest (340 miles from Minneapolis, 420 miles from Chicago, and 550 miles from Detroit). However, the Upper Peninsula is accessible by numerous highways (see Region map, page 5). The principal routes from lower Michigan are I-75 across the Mackinac Bridge and US 2 at Ironwood on the Wisconsin border. Canadian travelers have access by way of Sault Ste. Marie.

To travel the length of the Keweenaw Peninsula most visitors use M-26. US 41 provides north-south access from Menominee to the tip of the peninsula and is the main access route to Calumet. The Michigan Department of Transportation estimates that average daily traffic on US 41 in the Calumet and Houghton area is 4,000 vehicles, approximately 50 percent of which is tourist-related traffic.

REGIONAL TRAVEL AND VISITOR USE

The Upper Peninsula is known for its wild-lands recreation and the scenery of the surrounding Great Lakes. The U.S. Travel Data Center estimates that the peninsula hosts 3.8 million visitors annually. Over half of these people visit the eastern third of the area, 25 percent visit the central portion, and 23 percent travel to sites on the western peninsula.

In 1989 the Northern Data Research Center at Northern Michigan University examined Upper Peninsula travel patterns. The majority of visitors are Michigan residents

TABLE 4: ECONOMIC EFFECTS OF TOURISM

COUNTY	TOTAL TRAVEL EXPENDITURES (\$000)	PERCENTAGE OF UPPER PENINSULA	GENERATED EMPLOYMENT (JOBS)	TRAVEL PERCENTAGE OF TOTAL EMPLOYMENT
Houghton	37,250	6.4	790	8.4
Keweenaw	9,228	1.6	185	*
Ontonagon	14,237	2.4	302	9.2
Mackinac	189,095	32.1	4,480	21.1
Marquette	148,492	25.2	2,228	8.9
Upper Peninsula	589,474	100.0	11,894	14.6

* Houghton and Keweenaw are combined.

(53 percent), with 45 percent coming from downstate. Travelers generally stay on the peninsula for 6.6 days, and each party (average three people) spends \$75 a day.

Destinations in the three-county area most often cited by visitors include Isle Royale National Park, Twin Lakes, F. J. McLain State Park, Arcadian Copper Mine, the Quincy Mine hoist, Copper Harbor, Fort Wilkins State Park, Brockway Mountain Drive, and Porcupine Mountain State Park (see Historic, Natural, and Recreational Features map and appendix E).

State Parks

The state parks near the Keweenaw Peninsula attract many of the visitors to the area. In keeping with the area's outdoor attractiveness, these parks provide opportunities for camping, hiking, scenic driving, and water sports. In 1989 Fort Wilkins had 165,800 visits; F. J. McLain, 180,800; Twin Lakes, 41,600; and Porcupine Mountain, 458,300. Ninety-two percent of state park use occurs in the summer.

Isle Royale National Park

Isle Royale National Park is a destination for many regional travelers. Trips to the island are, for the most part, restricted to those with reservations, and use of the island is limited by boat space, island accommodations, and backcountry permits. In 1989, 1,923 Isle Royale visitors boarded at Houghton, and 4,246 boarded at Copper Harbor. The number of park visitors who live in the three-county area and who depart from either Houghton or Copper Harbor is relatively small.

Historic Mines

Arcadian Copper Mine in Hancock gives underground tours of a historic copper mine. Visitation from 1984 through 1989 averaged 13,560 people.

The Quincy Mine hoist in Hancock was visited by 5,700 people in 1989.

The Delaware Copper Mine in Houghton also offers mine tours. Visitation figures for this site are unavailable.

ANALYSIS OF RESOURCES



INTRODUCTION

The resources within and adjacent to the Quincy Mining Company and Calumet historic districts were evaluated to determine how they might relate to a historical park. Each historic district was divided into areas that would be suitable for a particular function, based on the nature of the resources, interpretive potential, ease of visitor access, general adaptability of structures for visitor facilities, and visual values. The areas are shown on the Site Analysis maps and are described below.

Perhaps the most important unresolved question that would affect the establishment of a national historical park is whether any locations contain hazardous waste as defined by EPA regulations. Before any lands can be acquired by the federal government, a study must be conducted to ensure that no hazardous wastes are present and that visitor health and safety can be ensured. Also, ruins need to be stabilized, dangerous mines capped, asbestos removed, and other actions taken as needed.

QUINCY MINING COMPANY HISTORIC DISTRICT

OVERVIEW

The Quincy Mining Company Historic District includes the mine location, the smelting works, several worker housing developments, and facilities such as the doctor's office and company hospital. The site's topography is dramatic, with most of the facilities having been built on the flat crest of Quincy Hill, which slopes steeply to Portage Lake. A ski area operated by Michigan Technological University is within the historic district boundary, but a proposal has been made to exclude it from any park boundary.

Little new development has occurred since the mines closed, so the integrity of the Quincy site as a whole is exceptionally high. There are few intrusions or noncontributing structures, and modifications to housing have been minimal; however, many houses have been lost. The upgrading of Calumet Road to a two-lane highway (US 41) has somewhat altered the historic character of the site.

All of the shaft/rockhouses except the one at the no. 2 shaft have been removed; the shafts have been fenced for safety and covered with steel grating. Some of the associated surface works have been torn down, but many structures are standing, and several others remain as significant and identifiable ruins. Smokestacks from boiler houses dot the hillside, while abandoned railroad trestles and narrow gravel lanes are expressive of patterns of work and community life. Apple trees that were planted decades ago to improve the quality of life in an industrial setting still line the unimproved roads and cluster around the foundations of mine buildings and houses.

Several periods of development at the site are evident, from the early vernacular

Pewabic and Quincy buildings constructed of local sandstone to the classical styling of the no. 2 hoist house, with its brick veneer, Palladian windows, and green tile roof. The housing types also reflect the history and development of the mine, ranging from small, single-cell log miners' houses (now covered with clapboard) in Limerick, to slightly larger "telescope" houses on mine rock foundations, to a few rows of Sears and Roebuck catalog houses. More elaborate architectural styles mark the company offices and managers' residences. A few of these buildings have been removed, but the row is basically intact.

The Quincy Mining Company also built water and sewer systems to serve the mining site and residential areas. The extent, condition, and future responsibility for these systems will need further study.

SITE ANALYSIS

Areas that have been identified as important resource areas and that could be used for on-site interpretation and visitor use are denoted with an asterisk.

Quincy Shaft/Hoist House Complex (Area A)*

The shaft/hoist house is perhaps the most significant remaining resource at the Quincy Mine. The following adjacent structures are particularly worthy of preservation: the no. 2 shaft/rockhouse, the no. 2 hoist house (1918–20), the no. 2 hoist house (1894–95), the old no. 2 hoist house (1882), the no. 5 boiler house, the oil house, the supply office, and the captain's office. Two remaining residential structures near the hoists are also worthy of preservation, and approximately 15 ruins may be deserving of interpretation.

- A SHAFT/HOIST HOUSE COMPLEX**
- highly visible from Houghton, smelting works, and US 41
 - readily accessible
 - intact remains of equipment for mining, hoisting, and transporting ore
 - high potential for interpretation of mining technology
 - limited potential for adaptively using larger facilities
 - hazardous waste status unknown

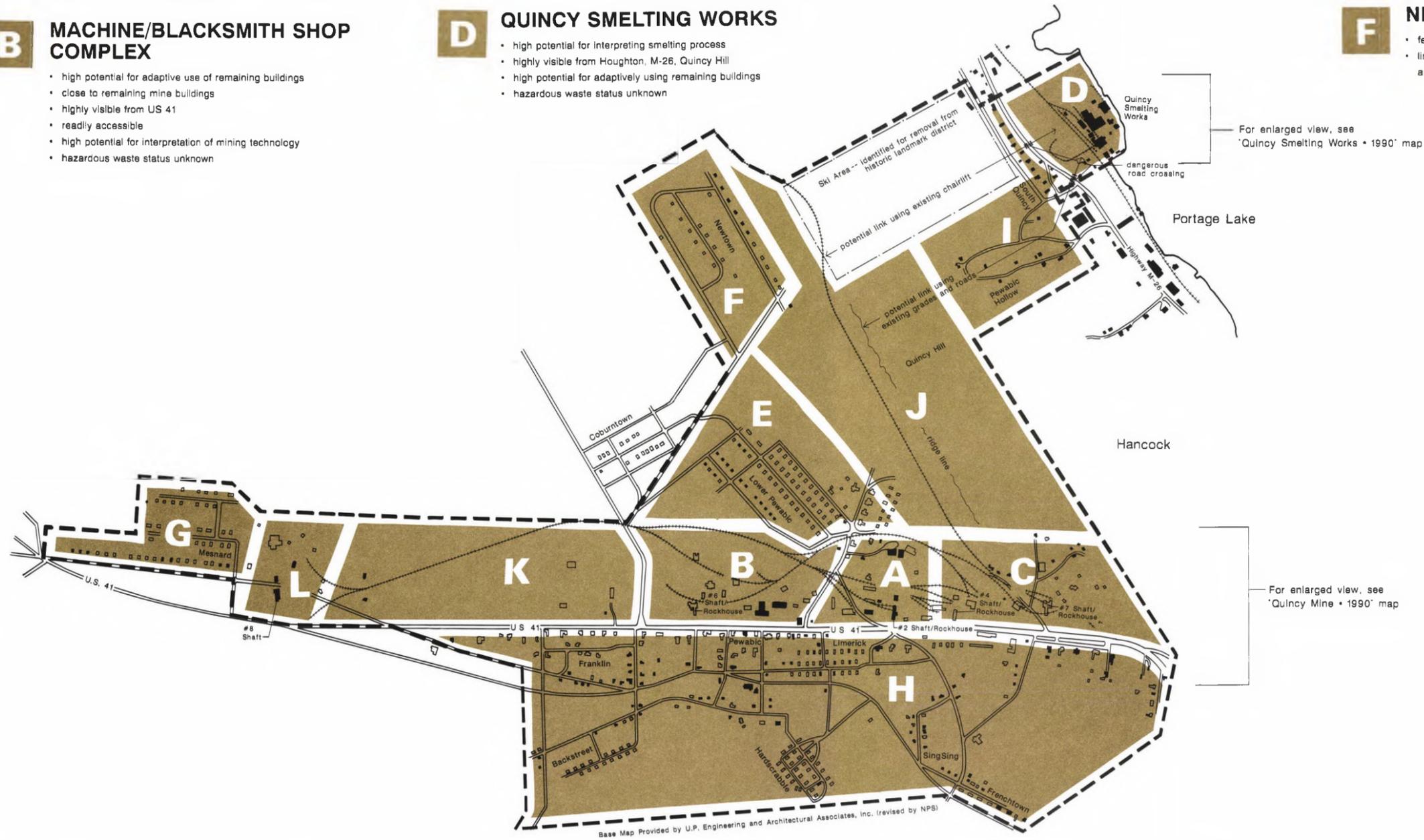
- B MACHINE/BLACKSMITH SHOP COMPLEX**
- high potential for adaptive use of remaining buildings
 - close to remaining mine buildings
 - highly visible from US 41
 - readily accessible
 - high potential for interpretation of mining technology
 - hazardous waste status unknown

- C SOUTH MINE RUINS**
- high potential for interpretive trails through building ruins and along railroad tracks
 - historic elements of cultural landscape evident
 - flat terrain readily accessible
 - some remains of company housing

- D QUINCY SMELTING WORKS**
- high potential for interpreting smelting process
 - highly visible from Houghton, M-26, Quincy Hill
 - high potential for adaptively using remaining buildings
 - hazardous waste status unknown

- E LOWER PEWABIC HOUSING AREA**
- intact remains of company housing
 - regular appearance of company housing apparent
 - historical relationship between home and work sites
 - high potential for interpretive trail
 - historical cultural landscape (domestic plants) evident where houses have been removed

- F NEWTOWN HOUSING AREA**
- few remaining structures
 - limited interpretive potential due to remoteness from main mining areas and loss of resources



LEGEND

- Historic District Boundary
- Existing Building
- Building Ruin or Site

- G MESNARD HOUSING AREA**
- limited interpretive potential due to remoteness and loss of resources

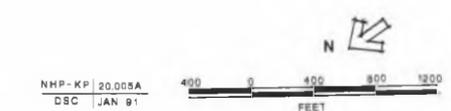
- I COMMERCIAL DISTRICT AND SOUTH HOUSING AREA**
- limited interpretive potential due to loss of integrity
 - potential link between Quincy Hill and smelting works

- K NORTH MINING PROPERTY**
- few resources
 - potential link between Homestake Mine and main mine area

- H WEST HOUSING AREA**
- area physically separated from rest of landmark by US 41
 - high potential for interpreting roadside buildings from interpretive trails on east side of US 41
 - contribution to historical scene, especially along US 41

- J QUINCY HILL**
- high recreation potential for trails linking major sites
 - high scenic potential, good views of smelting works, Portage Lake, and Houghton
 - high potential for interpreting shipping and Portage Lake

- L HOMESTAKE MINE**
- high potential for interpreting recent mining technology

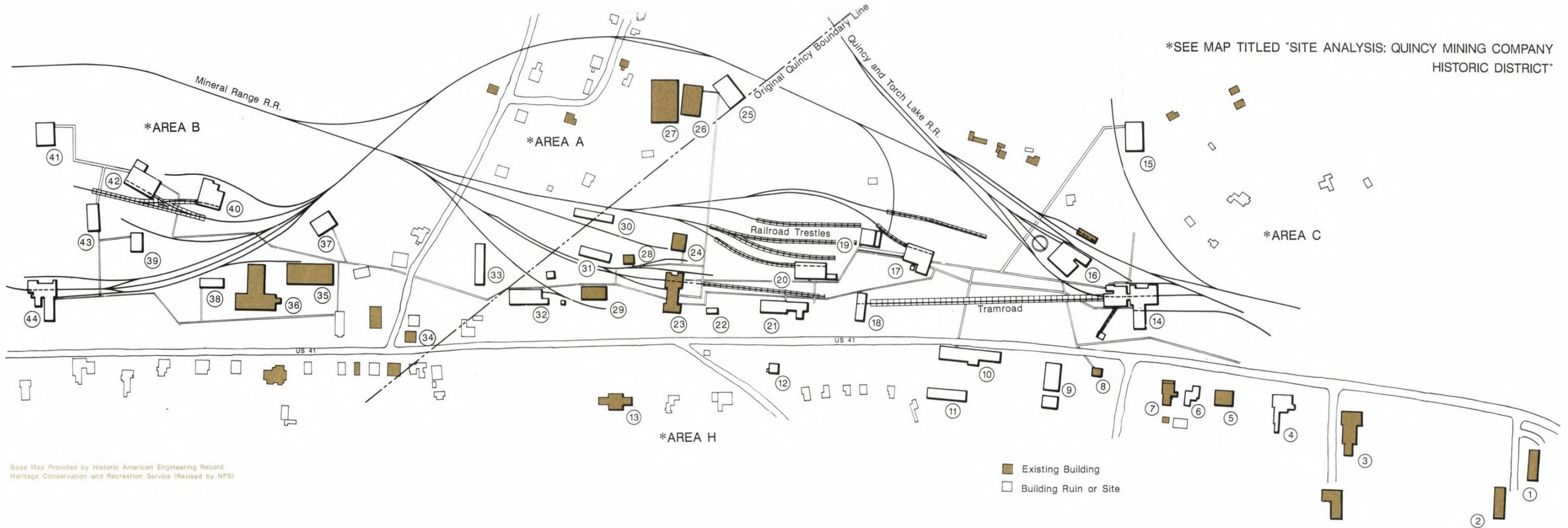


SITE ANALYSIS: QUINCY MINING COMPANY HISTORIC DISTRICT

PROPOSED KEWEENAW NATIONAL HISTORICAL PARK

MICHIGAN

*SEE MAP TITLED "SITE ANALYSIS: QUINCY MINING COMPANY HISTORIC DISTRICT"

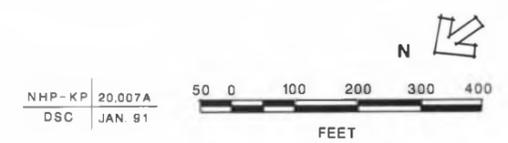


Base Map Provided by Historic American Engineering Record, Heritage Conservation and Recreation Service (Revised by NPS)

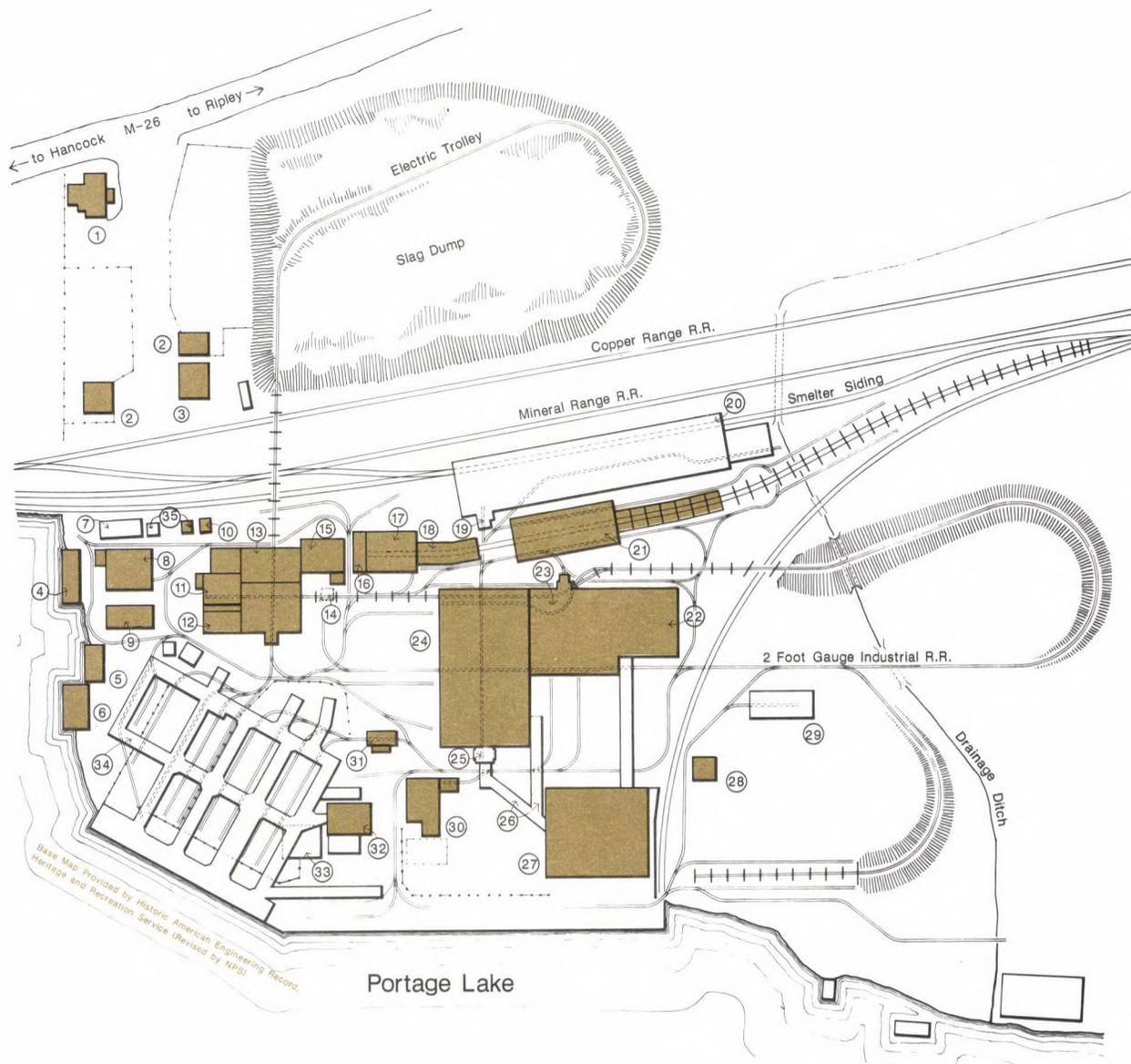
Existing Building
Building Ruin or Site

- | | | | | |
|------------------------------------|--|--|--|---|
| 1. Doctor's Residence | 12. Mine Captain's Office Site | 22. Diamond Drill Core House Site | 32. Carpenter Shop Site (1893) | 41. No. 6 Hoist House Site (1891-92) |
| 2. Dispensary | 13. Bathhouse (Clubhouse) | 23. No. 2 Shaft/Rockhouse (1908) | 33. Lumber Shed Site (1893) | 42. No. 6 Boiler House (1891-92), stack remains |
| 3. Agent's Residence | 14. No. 7 Shaft/Rockhouse Site (1899-1900) | 24. Old No. 2 Hoist House (1882), used for storage | 34. Captain's Office | 43. No. 6 Compressor Building Site |
| 4. Clerk's Residence Site | 15. No. 7 Hoist House Ruins (1898-1900) | 25. No. 5 Boiler Plant Ruins (1912) | 35. Machine Shop (1899-1900) | 44. No. 6 Shaft/Rockhouse, shaft capped |
| 5. Mine Office (1896-97) | 16. Locomotive Engine House & Turntable Ruins (1889) | 26. No. 2 Hoist House (1894-95) | 36. Blacksmith Shop (1900) | |
| 6. George North's Residence Site | 17. No. 7 Boiler House Ruins (1898) | 27. No. 2 Hoist House (1918-20) | 37. No. 6 Compressor Building Site | |
| 7. Captain's Residence | 18. No. 4 Shaft/Rockhouse Site | 28. Oil House (1893) | 38. No. 6 (North Quincy) Dry House Site, converted in 1908 to storage facility for iron, steel, coal, and coke | |
| 8. Assay Office (1897) | 19. No. 4 Hoist House Ruins (1885) | 29. Supply Office (1893) | 39. Old Pewabic Mining Co. Boiler House, converted in 1907 to serve as North Quincy Dry House, now ruins | |
| 9. North's Store Site | 20. No. 4 Boiler House Ruins (1882) | 30. Warehouse Site (c. 1900) | 40. No. 2 Boiler House, stack remains | |
| 10. Blacksmith Shop Site (c. 1860) | 21. Compressor Building Site (1881) | 31. Pipe House Site (c. 1895) | | |
| 11. Dryhouse Site (c. 1860) | | | | |

Note: dates in parentheses are for original construction



QUINCY MINE • 1990
PROPOSED KEWEENAW NATIONAL HISTORICAL PARK
MICHIGAN



- | | | | |
|--------------------------------------|------------------------------------|--|---------------------------------|
| 1. Office Building (1898) | 13. Cupola Building (1898) | 23. No. 5 Reverberatory Furnace Building (1904) | 32. Charcoal House (1898) |
| 2. Garage | 14. Hose Cart House Site (1917) | 24. Reverberatory Furnace Building (1898) | 33. Sand House Site (1898) |
| 3. Barn (1898) | 15. Pump House Addition (1906) | 25. Scale House (c. 1907) | 34. Coal Trestle Site (c. 1907) |
| 4. Boat House | 16. Crushing Plant (c. 1919) | 26. Covered Runways Site (c. 1919) | 35. Gate Houses |
| 5. Lumber Shed (c. 1917) | 17. Briquetting Plant (1906) | 27. Dockside Warehouse (1898) (Dry House Addition, 1916) | |
| 6. Cooper Shop (1898) | 18. Limestone Bins (1907) | 28. Ice House (1899) | |
| 7. Gate Warehouse Site | 19. Scale House Site (1898) | 29. Mould Shop Site | |
| 8. Machine Shop (1907) | 20. Railroad Warehouse Site (1901) | 30. Assay Office (1898) (Addition, 1908) | |
| 9. Cooper Stock (1898) | 21. Mineral House (1904) | 31. Scale House (1898) | |
| 10. Coal Shed (1898) | 22. Casting Plant (1920) | | |
| 11. Boiler House (1905) | | | |
| 12. Baden Hausen Boiler Bldg. (1919) | | | |

LEGEND

□ Building Ruin or Site
■ Existing Building

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SITE ANALYSIS MAP: AREA A
QUINCY SMELTING WORKS • 1990
PROPOSED KEWEENAW NATIONAL HISTORICAL PARK

The resources in area A are of exceptional interpretive value for illustrating mining technology. The no. 2 shaft and hoist houses are highly visible from Houghton and other points along Keweenaw Bay, and they are readily accessible from US 41. The buildings contain original machinery and are currently operated as a tourist attraction by the nonprofit Quincy Mine Hoist Association. These facilities do not contain sufficient space to develop a major visitor center.

Within the shaft/hoist house complex are poor rock piles (mined rock that did not contain enough copper to be worth processing). These sites need to be evaluated by the Environmental Protection Agency for hazardous waste. Pending the results of such an evaluation, it is not now known if this site would be available for development. However, the area is potentially suitable for visitor development and interpretation.

Machine/Blacksmith Shop Complex (Area B)*

The 37-acre machine/blacksmith shop complex is just to the north of the shaft/hoist house complex. The machine and blacksmith shops are large buildings that could readily be adapted for use as a visitor center or for administrative functions. They also have excellent access from US 41. Both buildings need substantial repairs and otherwise could rapidly deteriorate. Other structures include the dryhouse, stacks from the boilers, and foundations from boiler, hoist, and compressor buildings. The complex includes approximately 11 ruins, some of which are worthy of interpretation, including the capped no. 6 shaft.

Like the shaft/hoist house complex, poor rock piles in this area require evaluation by the Environmental Protection Agency

for hazardous waste. Pending the results of the evaluation, it is not known if this site would be available for development.

South Mine Ruins (Area C)*

Area C consists of the mine ruins area directly south of the shaft/hoist house complex, and it includes several important sites that have high interpretive potential. The area is level and could accommodate a short interpretive trail, which could be easily made accessible to disabled visitors. Poor rock piles in this area would also require evaluation for hazardous materials by the Environmental Protection Agency.

Smelting Works (Area D)*

The Quincy smelting works are on Portage Lake, across from the Isle Royal headquarters in Houghton. When viewed from across the lake, the smelter looks much as it did in 1910. The smelting works area includes all of the land south of M-26 (approximately 22 acres); it contains 25 contributing structures and 15 sites (see the Quincy Smelting Works map), plus two locomotives, tracks, and smelting equipment (some in poor condition).

The smelter has not been in operation since the late 1960s, and all structures are rapidly deteriorating. No work in recent years has been done to help preserve these buildings. Access could be easily provided from M-26.

This area is currently being evaluated by the Environmental Protection Agency for hazardous waste, so whether it would be available for development is not known at this time. However, the area is potentially suitable for visitor development and interpretation.

Lower Pewabic Housing Area (Area E)*

Mine workers lived in the Lower Pewabic housing area. The area consists of 15 houses and the sites of 75 others; the area is approximately 100 acres. This area has potential for interpreting the cultural landscape, as well as other aspects of miners' lives and work. The terrain could easily accommodate a series of interpretive loop trails.

Housing (Areas F, G, H)

West of US 41 are housing areas and some office buildings. The area has integrity and interpretive potential, but access across busy US 41 from the shaft/hoist house complex would be a safety concern. (The Lower Pewabic housing area offers equally good interpretive potential without hazardous access problems.) Many of the original houses in areas F and G are missing, reducing the interpretive potential of these areas. Visual quality along US 41 would be important to preserve in area H, but development for interpretation would be a low priority.

Commercial District and South Housing Area (Area I)

Area I has few remaining resources. Its main potential would be to link the smelting works to the rest of the mine site.

Quincy Hill (Area J)

This area includes the brink of Quincy Hill, overlooking Portage Lake and Houghton. Railroad tracks and cars remain on the old route to the stamp mills along Torch Lake. Trails and recreation facilities that would take full advantage of scenic

and historic views could be developed in this area.

North Mining Property (Area K)

Area K has few resources; its main potential would be to link with the Quincy/Homestake Mine, if desired.

Homestake Mine (Area L)*

The Quincy/Homestake Mine is an 11-acre site at the north end of the landmark and includes a 1960s shaft and headframe. It represents the last attempt at mining by the Quincy Mining Company. Three of the structures are worthy of preservation – a headframe, a hoist building, and another unidentified building. This area could be used to interpret recent mining technology. There are few or no remains of the earlier surface plant, which was erected around 1900.

HAZARDOUS WASTE SITES

Asbestos was probably used for insulation of steam boilers and pipes. Some of the Quincy Mining Company drawings show an extensive underground network of pipes leading from several central boilers. Asbestos can also be used in hundreds of other materials, such as adhesives, gypsum products, and floor or ceiling tiles.

A report to inspect approximately 50 buildings at the Quincy smelting works and mine site (east of US 41) for asbestos contamination would cost approximately \$50,000. This would include four weeks of fieldwork by two persons, laboratory testing of 500 samples, and writing of the report. Without a complete inspection and analysis such as this, it would not be possible to provide any meaningful estimates for asbestos removal.

CALUMET HISTORIC DISTRICT

OVERVIEW

The Calumet Historic District includes the C & H mine location, the Calumet commercial district, and residential areas. Three additional areas outside the historic district – the Osceola Mine, a block of merchant housing, and Calumet Lake – have been evaluated for the site analysis (see the Calumet Site Analysis map).

The original shaft/rockhouses have been removed, and the only structure in the whole C & H Mine area is the Osceola shaft house (area D). The mine buildings and the community buildings constructed by the company are generally handsome structures, built of native red sandstone.

SITE ANALYSIS

Areas that have been determined to be important resource areas in terms of providing for on-site interpretation and visitor development are designated with an asterisk.

Calumet Mine Buildings (Area A)*

The original Calumet Mine area (north of Red Jacket Road) retains an impressive number of structures, including the C & H office building and the Alexander Agassiz house. However, several new structures intrude on the historical scene, notably along Red Jacket Road. If this area was developed for visitor use, vehicle access could be provided along Red Jacket Road, although some side streets might also have to be used. Area A is suitable for visitor facility development, but its desirability is limited by access constraints and visual intrusions.

The buildings described below might be appropriate for adaptive use as a visitor center. They each contain between 5,000 and 10,000 square feet and have a direct tie to the mining story, as described in the nominating forms for national historic landmark status. (The square footage is roughly estimated from Lake Superior Land Company maps, scale 1 inch to 300 feet). Accessibility, adaptability, existing use, ownership, potential safety or hazardous materials, and other factors that are important in actual site selection were considered to a lesser extent. (Building numbers are keyed to the Calumet Site Analysis map.)

- Main office (13) – small
- Miscowaubik Club (14) – large
- Calumet Village school (15) – large
- Superior boiler house (17) – large
- Drill shop (18) – large
- Dry house (19) – small
- No. 2 warehouse (20) – very large
- Gear house (21) – large

Hecla Mine Buildings (Area B)*

The original Hecla mine location (north of Red Jacket Road) retains a high degree of integrity. Even though some buildings have been removed, many of the most significant structures (including warehouse 1, the roundhouse, blacksmith shop, pattern shop, bathhouse, and library) and several lesser structures are in fair to excellent condition. Some of the railroad tracks have been removed, but routes used for transportation are still evident.

Various buildings in area B could be adaptively used, there is vacant land for parking or new construction, vehicle access is good, and the interpretive potential is excellent – factors which make this area

highly suitable for visitor facility development. However, the availability of land or buildings has not been determined. The buildings listed below would be large enough (between 5,000 and 10,000 square feet) to accommodate a visitor center.

- Machine shop (2) – large
- Blacksmith shop (4) – small
- Pattern shop (Coppertown) (5) – small
- No. 1 warehouse (7) – large
- Roundhouse (8) – large
- Bathhouse (9) – small
- Paint shop (10) – small
- C & H library (Lake Superior Land Office) (11) – small

If area B was developed for visitor use, vehicle access to most buildings could be provided from US 41 by way of the Sixth Street extension. This entry would not be the historic access route, but it does offer impressive views of the cluster of churches and homes just south of the commercial district (areas E and F), as well as of the mine buildings.

South Mine Area (Area C)

The southern portion of the Hecla Mine (area C) has little interpretive value because most building ruins are essentially rubble. Area C also contains lakes and wetlands, and is near the Swedetown cross-country ski trails and a snowmobile/hiking trail. This area could be developed for recreational opportunities.

A poor rock pile in the southwest corner of area C is being investigated by the Environmental Protection Agency for potential hazardous waste, so the suitability of this area for development and visitor use cannot be fully assessed. Other studies are needed to determine if the mine shafts can be capped to ensure visitor safety. This area has limited potential for interpretation or other park-related activities.

Osceola Mine (Area D)*

The Osceola Mine (area D) could be used to interpret more recent mining technology. Public access between the mine and Calumet would need to be improved.

Churches/Union Building (Areas E and F)*

Four churches and the three-story brick union building flank Red Jacket Road as it leaves the C & H Mine area. St. Anne's church and the Union building are currently vacant and in danger of being dismantled. Traffic congestion along the road is relatively high, parking is limited, and views of the churches are diminished by incompatible buildings and traffic. Poor public access and the size and physical arrangement of the structures would make it difficult to adaptively use them as prime visitor facilities. They are, however, important to the story of the village, and they could be interpreted on village walking tours. The search for other adaptive or commercial uses should continue.

Agassiz Park (Area G)*

An open area between the village and the mines was originally a commons, after the Boston model. In the early 1920s Warren H. Manning, a nationally recognized Boston landscape architect, designed Agassiz Park, with tree-lined walks and a tapestry of native and cultivated plantings. A 7-acre section of the original park, including the focal point of the design, has been developed as subsidized housing. The remainder is still open space, but the plantings have not been maintained. The park still serves as a transition between mine buildings and the downtown area. The remaining open space could be restored to its original design and interpreted to illustrate town life.

A CALUMET MINE BUILDINGS

- potential visitor center location
- significant visual intrusions
- capped mine
- several access options
- interpretive potential

B HECLA MINE BUILDINGS

- potential visitor center location
- high integrity and strong visual impact
- several access options
- range of building sizes
- interpretive potential

C SOUTH MINE AREA

- wetlands and lakes
- ruins of limited interpretive value
- great views of town
- mine hazard safety issues
- potential hazardous waste site

D OSCEOLA MINE

- 1960s shaft/hoist house in good condition
- access via gravel road; indirect route to town
- interpretive potential

E CHURCH/UNION BUILDING GROUP

- significant buildings
- substantial deterioration
- severely restricted access
- less visual impact than Sixth Street entry
- interpretive potential

F VIEW - SIXTH ST. EXTENSION

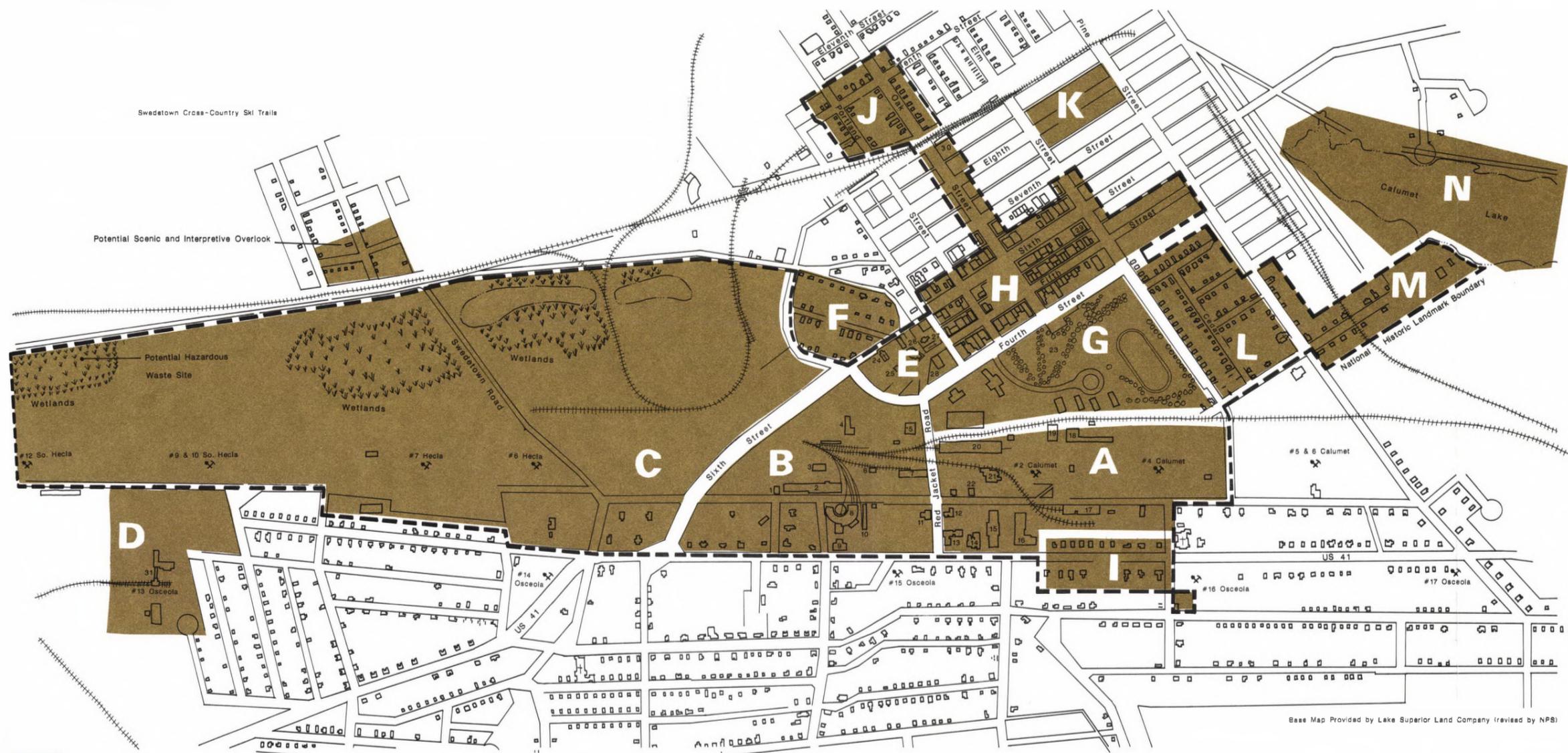
- houses and churches form excellent view for north-bound vehicles on Sixth Street Extension
- outside national historic landmark boundary

G AGASSIZ PARK

- nonhistoric redevelopment (west and south)
- potential to restore remainder

H COMMERCIAL AREA

- turn-of-the-century appearance
- development potential
- some intrusions
- interpretive potential



LEGEND

1	Firehouse
2	Machine Shop
3	Pattern Storage
4	Blacksmith Shop
5	Pattern Shop (Coppertown U.S.A. Museum)
6	No. 3 Warehouse
7	No. 1 Warehouse
8	Roundhouse
9	Bathhouse
10	Paint Shop
11	C & H Library
12	Agassiz House
13	Main Office
14	Miscowaubik Club
15	Calumet Village School
16	Washington School
17	Superior Boilerhouse
18	Drill Shop
19	Dry House
20	No.2 Warehouse
21	Gear House
22	Substation
23	Agassiz Park
24	Swedish Lutheran Church
25	Christ Episcopal Church
26	First Presbyterian Church
27	St. Anne's Church
28	Union Building
29	Calumet Town Hall and Theater
30	Train Depot
31	Osceola Mine Hoist and Shaft Houses
ⓧ	Mine Shaft

I MINE CAPTAIN HOUSES

- attractive
- busy street detracts from effect
- mine building being used for police headquarters
- interpretive potential

K MERCHANT HOUSES

- attractive
- contrast to other houses
- outside national historic landmark boundary
- interpretive potential

M MISCELLANEOUS STRUCTURES

- significant visual intrusions
- limited visitor interest

J MINE WORKER HOUSES

- similar to area L
- interpretive potential

L MINE WORKER HOUSES

- stronger visual impact than area J
- interpretive potential

N CALUMET LAKE

- recreation potential
- close to town

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SITE ANALYSIS CALUMET HISTORIC DISTRICT

PROPOSED KEWEENAW NATIONAL HISTORICAL PARK

MICHIGAN

Commercial District (Area H)*

Fifth and Sixth streets, between Scott and Pine streets, comprise the village's main commercial area. The structures here reflect Red Jacket's commercial development during the boom years. Most major structures are still standing, and several retain a high degree of integrity. Many buildings have undergone facade alterations at street level. Generally, treatments applied over the original materials could be easily removed. The overall plan, scale, design, and setting of this area would help to convey a sense of the town fabric in the late 19th and early 20th centuries.

Because access to the commercial district would be difficult for large numbers of vehicles, this area would not be suitable for the development of a primary visitor facility. Nevertheless, it has high interpretive potential for explaining various facets of community life, including business and social aspects.

Housing (Areas I, J, K, and L)*

North and west of the commercial district are the housing areas for workers. Mine captains live in area I, mine workers in areas J and L, and merchants in area K (interspersed between company housing and the commercial center). Company houses to this day are numbered consecutively by the C & H inventory numbers rather than by street location. Most common are the single and double family houses built between 1870 and 1910.

The depressed economic conditions in Calumet since the decline and closure of the mine have kept new construction and major renovations in residential areas to a minimum. Various types of siding have been applied to several houses, and many porches have been modified.

The small buildings, access problems, and conflicts with adjacent uses limit the suitability of this area for use as a primary visitor center facility. However, these areas have potential to illustrate the lifestyles of the different echelons of mining society, and individual sites within these areas could be selected to develop and interpret business, commercial, social, labor, residential, religious, and transportation elements of the mining story.

Miscellaneous Buildings (Area M)

Several mine buildings and other unrelated structures are found at the northern end of the historic district boundary, between the miners' housing area and Calumet Lake. This area includes the site of the first Calumet stamp mill, although no remains are visible. The interpretive potential of this area is low.

Calumet Lake (Area N)

Calumet Lake and the surrounding land have no historical interpretive value. This area could be developed by state or local agencies for recreation.

QUINCY MINING COMPANY HISTORIC DISTRICT



QUINCY NO. 2 SHAFT/ROCKHOUSE (1908) AND HOIST HOUSES (1920, 1894)



QUINCY SMELTING WORKS



QUINCY MACHINE SHOP AND BLACKSMITH SHOP



QUINCY MINE RUINS, SOUTH OF THE NO. 2 SHAFT/ROCKHOUSE



QUINCY SMELTING WORKS, 1898 CUPOLA BUILDING

CALUMET HISTORIC DISTRICT



HECLA MINE BUILDINGS FROM SIXTH STREET EXTENSION, CALUMET



CALUMET MACHINE SHOP



CALUMET TOWN HALL AND THEATER ON SIXTH STREET



VIEW ALONG A CALUMET COMMERCIAL STREET

**PARK DEVELOPMENT ALTERNATIVES
AND
MANAGEMENT OPTIONS**



ELEMENTS COMMON TO ALL ALTERNATIVES

The alternatives described in this section were developed on the assumption that certain elements would be common to all. These elements relate to interpretive themes, the development of facilities and interpretive media, and NPS cultural resource management policies. Certain federal, state, and local programs would continue, regardless of a congressional decision to establish a national historical park. If a national park was established by Congress, additional planning steps would be required, in accordance with NPS policies. Also, a means would be needed under any alternative to identify, preserve, and interpret other resources on the Keweenaw Peninsula outside the Quincy Mining Company and Calumet historic districts.

INTERPRETIVE THEMES

Interpretive themes are statements of the principal ideas that must be conveyed to visitors to help them understand the significance of Michigan's copper country. The themes listed below do not state every detail that should be interpreted; rather they form a framework for developing a complete story. These themes are the ideas that are considered essential for the public to know in order to have a comprehensive understanding of the copper country story. They would be the foundation for interpretation under any alternative.

Since ancient times the rich copper resources on the Keweenaw Peninsula have been used by people for various purposes, including trade.

Understanding the geology of the Keweenaw Peninsula was the key to finding economically viable copper lodes.

Despite the initial allure of mass copper, real financial success in mining did not begin until effective techniques were developed to retrieve and process the amygdaloid and conglomerate copper lodes.

A variety of social, political, and religious institutions, including several associated directly with the mining companies, emerged in an attempt to deal with social and economic conditions brought about by the influx of thousands of immigrants, economic fluctuations, and the frontier atmosphere of the copper country.

The mining companies made some attempts to foster a stable community life for their workers, yet considerable tension between workers and owners remained.

Immigrant labor made the mining companies' immense profits possible.

The challenge of extracting and processing the most copper for the least cost led to many technological innovations and new industrial methods that were ultimately responsible for the greatest success in exploiting the peninsula's vast copper resources.

Worker dissatisfaction with low wages, long workdays, and unsafe working conditions led to bitter struggles and emotionally charged disputes with the owners.

There was considerable job stratification along ethnic lines, which ultimately had a direct bearing on labor relations.

The Calumet and Hecla Mining Company and the Quincy Mining Company were the two Michigan companies that survived the longest, produced the most copper, led the way in technological innovation, and influenced the Michigan copper industry throughout its history.

Although the Keweenaw copper boom of the mid-1800s continued into the 1900s, its substantial contributions to the industry were superseded by the new western copper giants.

FACILITIES AND INTERPRETIVE MEDIA IN HISTORICAL PARKS

The establishment of a historical park implies a certain focus for management and visitor use – that is, the preservation and interpretation of historic resources so that visitors can learn more about a particular facet of our nation's history and relate it to the present.

To accomplish this goal, media such as movies, working models, interpretive signs, and written materials would complement the story conveyed by physical objects and landscapes. How these techniques are developed depends on the nature of the story itself and the integrity of the remaining buildings and landscapes that can help illustrate the story. Access, adjacent land uses, local development issues, safety, and numerous other factors also affect how the story is told.

The types of facilities and activities that are proposed in this study are described briefly below.

Visitor center – The general function of a visitor center is to orient visitors to the area and to the overall story that will be told. Visitor centers for this park would vary substantially in

size, the level of interpretation, and the type of media used for interpretation. A visitor center is proposed under all alternatives at Calumet, and under four alternatives a second visitor center would be established at Quincy.

At Calumet either a historic building or group of buildings in the C & H Mine area (between US 41 and the Calumet downtown area) could be acquired for a visitor center, or a new building could be constructed. Depending on the alternative, the Calumet visitor center would have to include between 5,000 and 10,000 square feet. The land area needed for a new facility would be about 4 acres.

Locations that are being considered for the Quincy visitor center are Houghton, the smelting works, and the machine/blacksmith shop complex.

On-site interpretation – On-site interpretation uses the historic resources to help illustrate a particular story to visitors. For this park on-site interpretation would occur in two ways: (1) by preserving or restoring buildings and their interiors and opening them to visitor tours, and (2) by stabilizing ruins so that visitors could tour the area and gain a feeling for what the area might have been like. Actions to preserve or restore structures would likely cost more than stabilization.

Some facilities under each alternative would operate on a year-round basis, even though most visitation would likely occur during the summer. Because snow will cover many of the ruins and other features used for outdoor interpretive activities during the winter, it may be difficult to provide for year-round use. Further study of the opportunity and need for year-round facilities would be conducted during the next phase of planning.

NPS CULTURAL RESOURCE MANAGEMENT POLICIES

Some of the alternatives propose the restoration of selected structures to help convey the interpretive story. The National Park Service could be involved in restoration activities only if the stringent criteria outlined in the *Cultural Resources Management Guideline (NPS-28)* were met. These criteria are as follows:

Restoration may take place only when essential for public understanding and appreciation of the park's historical or cultural associations, and when adequate interpretation cannot be imparted through other means.

Archeological, historical, and architectural data must be sufficient to permit accurate restoration with minimum conjecture.

Every restoration shall be preceded by a detailed historic structure report containing a study and documentation of the structure. Changes made during restoration shall be carefully documented.

Restoration work such as the demolition of noncontributing additions that will result in ground or structural disturbance shall be preceded by sufficient archeological investigations to determine whether significant subsurface or structural features will be affected.

If these criteria are not met, the National Park Service cannot be involved in restoration activities.

ONGOING AND PROPOSED PROGRAMS

A variety of ongoing and proposed activities by federal, state, local, and private entities will take place whether or not any alternative discussed in this document is implemented. If a national historical park was established, then these programs could complement park actions to protect cultural and natural resources within and around the proposed park and to make them available for public enjoyment.

Federal management programs for natural and cultural resources in the vicinity of the Quincy Mining Company and Calumet historic districts include state preservation grants that use funds from the Department of the Interior, grants from the Department of Commerce for planning and improvement of Calumet's infrastructure (sewer, water, fire protection, and landfill), housing rehabilitation grants from the Farmers Home Administration for Calumet, and U.S. soil and water conservation grants for flood diversion at Calumet.

National historic landmark properties are eligible for assistance under a variety of measures, including NPS technical preservation advice, federal tax incentives for rehabilitating income-generating historic properties, technical information, grant-in-aid assistance (limited in recent years to survey and planning work), and documentation through the Historic American Buildings Survey and Historic American Engineering Record. The National Park Service monitors the condition of national historic landmarks and reports annually to Congress about serious damage or imminent threats.

Michigan has awarded a \$195,000 grant for additional preservation work to the Calumet Village Offices Hall and Theater, and the village has obtained another \$100,000 for the project. An additional

\$100,000 will be spent to preserve Shute's Bar. Another \$500,000 will be spent to renovate the visitor reception area operated by the Quincy Mine Hoist Association. Also the Coppertown U.S.A. Museum is being evaluated for expansion and potential designation as a state heritage site.

Another proposal calls for the Michigan Department of Transportation to expand the state's new Heritage Road System by designating a series of roads on the Keweenaw Peninsula as the Copper Trail. These routes would be identified by distinctive signs, and waysides would be developed to interpret cultural and natural features.

In 1988 the Western Upper Peninsula Planning and Development Region (WUPPDR) authorized the establishment of the Heritage Reserve Steering Committee, consisting of representatives from the copper mining counties. The committee is responsible for organization, coordination, and planning functions associated with the development of a regional heritage reserve. As the first phase of this project, the region recently completed a historic resources management plan, which identifies resources of scientific, educational, and cultural value. This plan includes policies to protect natural and historic resources, and it suggests how to accommodate development needed for regional economic and population growth. During the next phases of this project, the committee will work toward implementing preservation and interpretive goals for natural and cultural resources associated with the reserve.

The Calumet Downtown Development Authority is planning to renovate 4th Street and to redevelop Agassiz Park. In the private sector, year-round walking tours and summer buggy rides of Calumet resources are being planned. Also pre-

liminary plans by private entities are being made to preserve and adaptively use some of the community's deconsecrated churches. In conjunction with Michigan Technological University, the Quincy Mine Hoist Association is investigating the feasibility of developing an underground mine experience.

REGIONAL RESOURCE PROTECTION

The Quincy Mining Company and Calumet historic districts do not contain all the resources that represent the copper mining story. Other key resources related to copper mining exist on the Keweenaw Peninsula. A way to study and identify these resources and to establish a coordinated preservation and interpretive program is needed. For example, an underground mining experience is currently offered at the Delaware Mine and the Arcadian Mine, and it may be desirable to refer to these opportunities in programs at the national historical park. With the exception of alternative 4, the alternatives assume that park management would develop programs to complement the existing mine tours.

Any forthcoming legislation should stipulate that the National Park Service could provide technical assistance for interpreting and preserving resources that illustrate the nationally significant story of copper mining on the Keweenaw Peninsula.

FUTURE PLANNING REQUIREMENTS FOR A NATIONAL HISTORICAL PARK

If a Keweenaw National Historical Park was created by Congress, a series of planning steps would be initiated as part of the NPS planning process. These

planning steps would include the following documents:

- a *statement for management* to determine park data needs and to establish management objectives
- an *outline of planning requirements* to determine what plans and tasks were needed to address issues, to gather information, and to achieve objectives
- a *park information base* to describe natural and cultural resources in detail
- a *general management plan*, which would accomplish the following: (1) set forth a management concept for the park; (2) establish a role for the unit within the context of regional trends and plans for conservation, recreation, transportation, economic development,

and other regional issues; and (3) identify strategies for resolving issues and achieving management objectives. Until a general management plan was completed and approved, the management objectives established by the statement for management would guide day-to-day operations; no new development or major rehabilitation would be undertaken without an approved general management plan.

The more detailed proposals resulting from this sequence of planning steps could supersede specific recommendations included in this *Study of Alternatives* document, such as specific uses for buildings and cooperative management organizations. The preparation of documents required by the National Environmental Policy Act could also result in additional changes to the alternatives as presented in this document.

PARK DEVELOPMENT ALTERNATIVES

Five alternatives to establish a Keweenaw National Historical Park are presented in this section. Each alternative describes how resources in the Quincy and Calumet historic districts would be preserved and interpreted for visitors, what development would be undertaken, and a range of estimated costs. The potential impacts of implementation are also discussed. The alternatives are summarized in table 5. Detailed cost estimates are presented in appendix F, and staffing and operating costs in appendix G.

The alternatives are based on the interpretive themes presented in the previous chapter, although the story would be told differently under each alternative, depending on the level of on-site interpretation. The alternatives are characterized by which resources would be protected, the proximity of visitor centers to the resources, the ease of visitor access, and the relationship to Isle Royale National Park. (Because the Isle Royale administrative facilities are in Houghton, the possibility of combining administrative functions and of jointly using facilities was explored.)

RESOURCE PROTECTION AREAS

The determination of which resources in the Quincy Mining Company and Calumet historic districts would be protected through partial or full acquisition was based on the site analysis and the relationship of the resources to the interpretive themes. The structures and areas that were determined to be essential to protect under any alternative include the Quincy shaft/hoist house complex, the Calumet and Hecla Mine area, and the village of Calumet. These resources would be protected under all alternatives. Other

important resources that would be protected under various alternatives as a result of expanded on-site interpretation and visitor use proposals include the following:

- Quincy smelting works – alternatives 1 through 4
- Quincy machine/blacksmith shop complex – alternatives 3 and 4
- Quincy Lower Pewabic housing area – alternatives 3 and 4
- Quincy/Homestake mine – alternative 4
- Calumet/Osceola Mine – alternative 5

Areas that would be acquired at the Quincy Mine site are on property owned by the Ventures Group, a company that bought the holdings of the Quincy Mining Company. The areas at Calumet are all privately owned.

For each alternative the important resource areas include between 300 and 500 historic structures that would contribute to the historical park. These structures would not necessarily be acquired. Most of these structures are in need of exterior preservation work to retain the historical setting for the park and to provide interpretive resources. No studies have yet been made to quantify the needs of these structures.

The resource protection areas are identified on the alternative maps with a cross-hatch, stripe, or dot pattern, depending on the proposed use.

PARK BOUNDARIES

The park boundaries for each alternative delineate the minimum areas required for park protection purposes. The boundaries encompass the important resource areas, plus all areas that would be needed to visually protect the historical setting. An ownership interest would be acquired in the important resource areas, but other areas within the park boundary would not necessarily be acquired. However, resources could be purchased if they were threatened by inappropriate uses or development.

The national historic landmark boundaries, which include all nationally significant resources, are also shown on the maps. The park boundaries include smaller areas than the historic landmark boundaries as a result of determining the most manageable units. This determination was based

on the size of the areas, the ease and safety of visitor access, and the number of structures that could be feasibly protected. National historic landmark properties outside the park boundaries would still be eligible for protection, as described in the previous chapter under "Ongoing and Proposed Programs" (page 57).

There would be no protection zone around the park lands in Houghton under any of the alternatives.

ADDITIONAL STUDIES

This is a conceptual study, and many other studies will be needed to refine the alternatives and make sure they are viable. The most critical studies are identified under each alternative. The results of such studies could significantly affect the alternatives.

ALTERNATIVE 1 – MINIMAL PRESERVATION AND ON-SITE INTERPRETATION

The goal under alternative 1 would be to protect the most important resource areas and to give visitors an overview of the copper mining story on the Keweenaw Peninsula. The highest priorities for resource protection would be the Quincy shaft/hoist house complex, the smelting works, and any historic structure at Calumet that was used for a visitor center. In addition to the Calumet visitor center, a visitor center for Quincy would be developed at Houghton. On-site interpretation would be limited to the Quincy shaft/hoist house complex and the smelting works, and to walking tours at Calumet (see Alternative 1 map).

Interpretation

The interpretive program would be focused at the visitor centers, where the story of mining would be described using a wide variety of media, such as exhibits, films, and printed material. Visitors would be told about what to look for throughout the peninsula, but they would have to rely on information received at the visitor centers and their own imaginations to appreciate what they saw. Few on-site interpretive opportunities would be developed.

Houghton/Quincy. Interpretation for the Quincy Mine would begin at the Houghton visitor center. Visitors would be oriented to the Quincy site, and the process of extracting copper from amygdaloid and conglomerate lodes would be explained. Even though Houghton is outside the Quincy historic district, views of both the smelting works and the shaft/hoist house complex across Portage Lake would provide an important visual link.

At the shaft/hoist house complex interpretation would focus on the technical aspects

of mining, and interpretive tours of the adjacent mine building ruins would be offered. The interpretive program currently given by the nonprofit Quincy Mine Hoist Association would be expanded.

At the smelting works on-site interpretation would be provided.

Calumet. The Calumet visitor center would orient visitors to the park and would interpret business, town, and home life (including company influences) during the mining era. Interpretive walking tours would be provided through the mine area, and through the village's commercial and residential areas. These tours would help visitors understand company operations, as well as the close relationship between the mine and the community.

Preservation and Development

Priorities for park resource preservation would be as follows:

Quincy

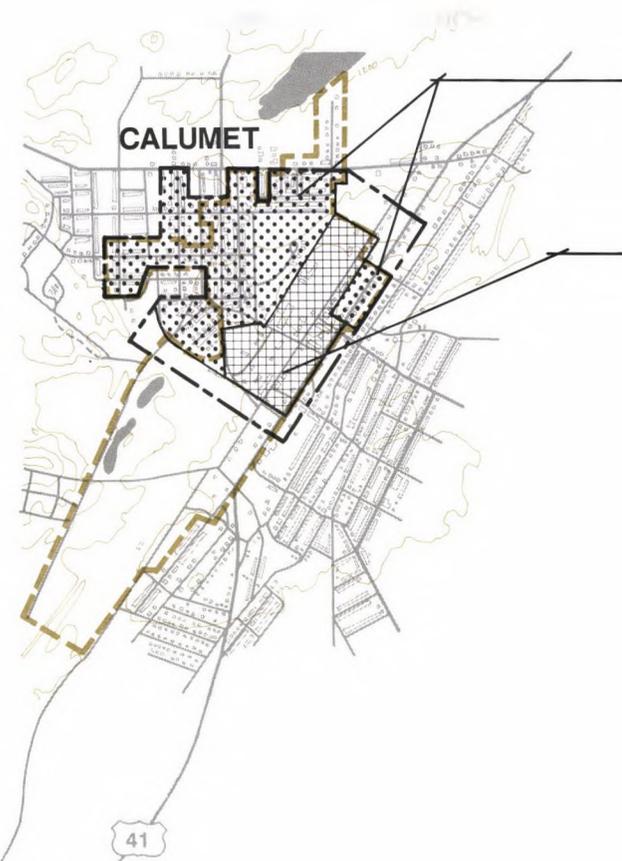
shaft/hoist house complex – preservation
smelting works – stabilization

Calumet

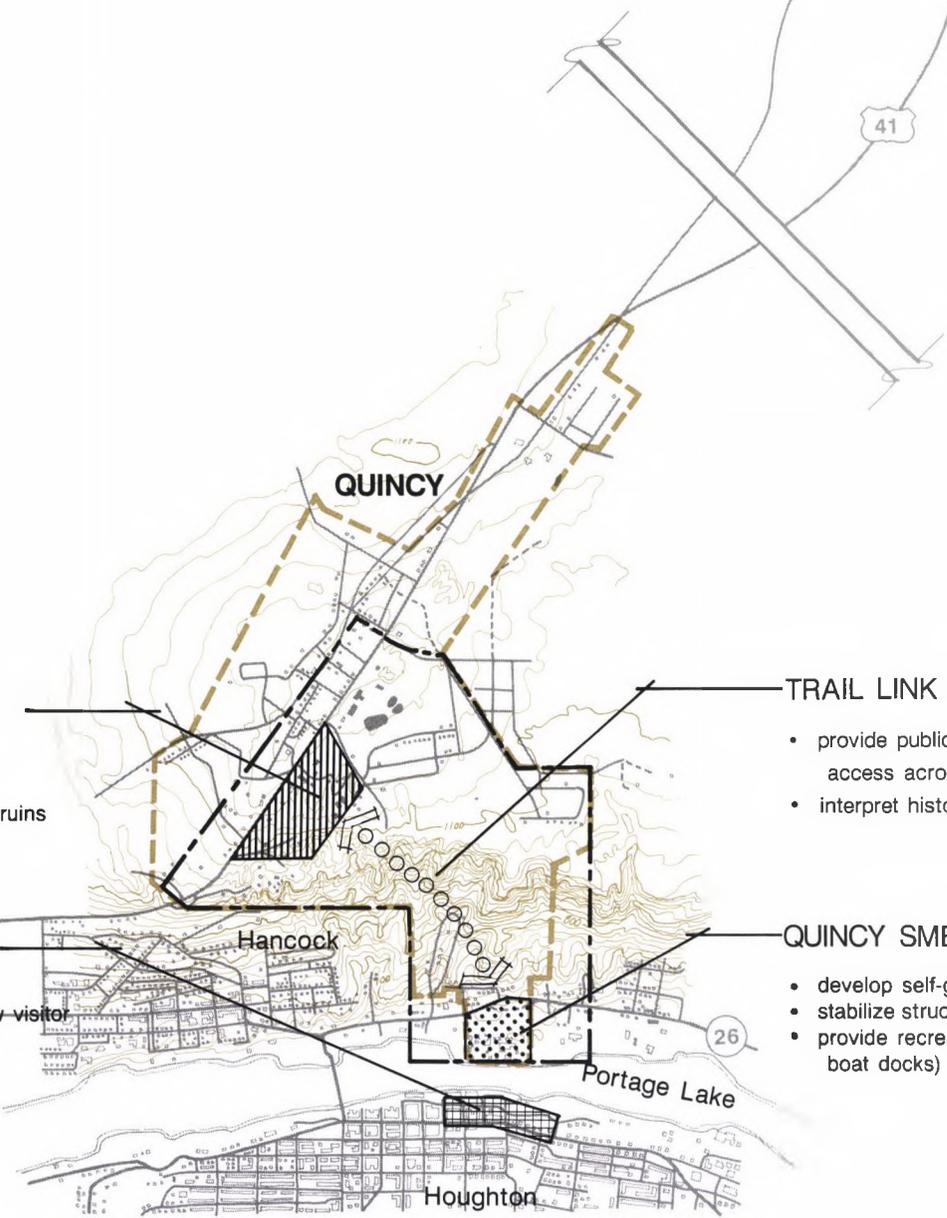
visitor center (if a historic structure was used) – rehabilitation

Other structures within the park boundaries would be eligible for assistance under the national historic landmarks program or through local preservation efforts.

Houghton. A larger visitor center would be constructed at the existing Isle Royale headquarters site. The new facility would serve both the national historical park and Isle Royale, but functions for each park would be clearly separated. Further study would have to determine if enough land was available to construct a new facility.



- TOWN WALKING TOURS**
- interpret business, town life, and home life
- CALUMET AND HECLA MINE BUILDINGS**
- develop visitor center in single building or complex (adaptive use or new construction)
 - provide interpretive walking tours of mine buildings

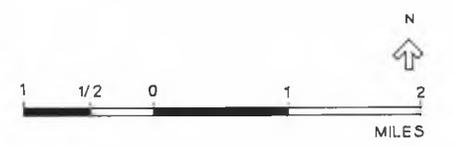


- QUINCY SHAFT/HOIST HOUSE COMPLEX**
- preserve existing buildings
 - interpret on-site resources
 - develop interpretive trail through stabilized ruins
- ISLE ROYALE HEADQUARTERS AT HOUGHTON**
- construct new Isle Royale and Keweenaw visitor center on larger site
 - interpret mining technology

- TRAIL LINK**
- provide public access corridor (no controlled access across M-26)
 - interpret historic tram route
- QUINCY SMELTING WORKS**
- develop self-guided interpretive trail
 - stabilize structures
 - provide recreational opportunities (picnicking, boat docks)

LEGEND

- VISITOR CENTER
- ON-SITE INTERPRETATION-FACILITY DEVELOPMENT
- ON-SITE INTERPRETATION-OUTDOOR EXPERIENCE
- PROPOSED PARK BOUNDARY
- NATIONAL HISTORIC LANDMARK BOUNDARY
- RECREATED HISTORIC INTERIOR
- ADAPTIVE USE WITH INTERPRETATION OF HISTORIC INTERIOR
- PUBLIC ACCESS
- PUBLIC TRANSIT AND ACCESS
- VIEW



ALTERNATIVE 1: Minimal Preservation and On-Site Interpretation

PROPOSED KEWEENAW NATIONAL HISTORICAL PARK

Quincy. The shaft/hoist house complex would be preserved, along with the ruins of the mine buildings to the south. An interpretive trail would be developed, which could easily be made handicap accessible.

The smelting works would be developed as an informal setting for visitors. The buildings would be stabilized, but portions of the complex would continue to decay. The historical scene as an industrial site would be maintained as far as visitor health and safety permitted. Interpretive walks and recreational opportunities, such as picnic areas and boat docks, could be established. The visual integrity of the site, which visitors could see from the visitor center across Portage Lake, would be preserved.

Calumet. A visitor center would be developed in the C & H Mine area in either a single structure or a complex; if possible, existing structures would be rehabilitated and adaptively used. This study has not determined if suitable structures could, in fact, be purchased for a visitor center. The most feasible way to implement this proposal would have to be studied.

No property would be acquired in the Calumet commercial and residential districts.

Access. Visitors would drive their automobiles from the visitor center at Houghton to the Calumet and Quincy facilities. The feasibility of establishing transportation and guided tours would be studied. A hiking trail would be developed between the shaft/hoist house and the smelting works. The trail would follow the historic tram route as closely as possible for approximately 1 mile, thus providing additional interpretive opportunities. No formal crossing of M-26 would be provided.

Boundaries

The existing Isle Royale National Park headquarters in Houghton would remain in NPS ownership, and additional land would be acquired for a new visitor center.

The park boundary for Quincy would include the shaft/hoist house complex, the area to the east, the smelting works, and the slope of Quincy Hill behind the smelting works (see the alternative 1 map). The shaft/hoist house complex and the smelting works would be proposed for either full or partial acquisition. The other lands within the park boundary would be included to protect visitor areas from visual intrusions and incompatible activities, and they could remain privately owned.

To ensure the protection of the historical setting, the park boundary at Calumet would coincide with the historic district boundary in the village and on the north and west. To the south the park boundary would include land needed to protect the Sixth Street extension and the C & H Mine building areas from visual intrusions and incompatible activities. Land within the boundary would remain in private ownership.

Estimated Costs

Alternative 1 would cost approximately \$22.9 million to implement (see table 5 and appendix F). The principal actions would be visitor center construction at Houghton (including Isle Royale headquarters – \$6.2 million), site work and development at the Quincy Mine (\$7.4 million), stabilization of the Quincy smelting works (\$7.1 million), and visitor center development at Calumet (\$2.2 million). Annual staffing and operating costs would be an estimated \$564,600 (see appendix G).

Impacts

Alternative 1 would protect and preserve historic resources at the Quincy shaft/hoist house complex, the ruins to the east, and the smelting works. Additional buildings within the boundary would be eligible for preservation assistance but would not be preserved as part of this alternative.

If a new visitor center was constructed in Calumet, soils would be permanently disturbed, vegetation eliminated, and air quality temporarily degraded by smoke, fumes, and dust generated on site during construction. After construction, denuded ground would be revegetated. There would be no effects on wetlands since none occur within the proposed park boundary.

The development of an interpretive trail and picnic area at Quincy would cause soil disturbance and necessitate the selective removal of vegetation. Increased human presence associated with the trail and picnic areas would disturb and possibly displace resident wildlife. Those species tolerant of human presence would adapt. Interpretive trails and picnic areas could be established in wetlands, but no adverse effects are expected.

Since numerous state-listed threatened plant species occur in Houghton County, further study could be necessary to determine the existence of these species at both Calumet and Quincy before vegetation was removed for facility construction, interpre-

tive trails, or picnic areas. Since the proposed boundaries would include developed areas or small tracts of undisturbed natural communities surrounded by developed areas, no adverse impacts would be expected to endangered or threatened plants and animals.

Alternative 1 could increase automobile and recreation vehicle traffic and congestion in and near the communities of Houghton, Hancock, and Calumet.

Any federal acquisition of properties would result in these properties being removed from local tax rolls; the loss of tax revenue would be partially mitigated by payments in lieu of taxes.

Park visitation could place greater demands on public facilities and utilities, particularly in Houghton and Calumet. This would include greater water and sewer capacity, improved sidewalks and street routes, parking areas, public restrooms, traffic regulation, and police protection.

Increased tourist income within the region could create a demand for additional tourist-related businesses, such as restaurants and recreation developments.

Construction activities would temporarily benefit the local economy, assuming that local labor and materials were used. The greatest impact would probably be in the Houghton and Calumet areas.

ALTERNATIVE 2 - INCREASED PRESERVATION AND ON-SITE INTERPRETATION

The goal of alternative 2, like alternative 1, would be to preserve the most important resource areas, but alternative 2 would offer visitors a better understanding of the mining process through on-site interpretation at the Quincy Mine, where a visitor center would be developed at the smelting works. A visitor center would also be developed at Calumet, as described for alternative 1. The highest priorities for preservation and rehabilitation would be the Quincy shaft/hoist house and the smelting works, and a Calumet visitor center (if a historic structure or complex was used). Development and interpretation at Calumet would be the same as described for alternative 1.

Interpretation

Under alternative 2 visitors would have a greater opportunity to see resources first-hand and with on-site interpretation, particularly at Quincy. Visitors would have to use their imaginations to recreate missing resources and to develop an empathy for the lives of the miners.

Quincy. Interpretation for the Quincy Mine would begin at the visitor center at the smelting works, where visitors would be introduced to the mining story. In-depth interpretation would be provided about the smelting process. Additional structures could be developed for on-site interpretation so visitors could learn more about how smelting fits into the mining process.

On-site interpretation at the Quincy shaft/hoist house complex would focus on the technical aspects of mining, as described for alternative 1.

An interpretive trail would be developed along Quincy Hill Ridge, providing excellent views of Portage Lake and the city of Houghton, plus interpretive wayside exhibits explaining the function of the historic tram route to the smelting works. Houghton's history as a port from which copper goods were shipped and the impact of mining on the forests and other natural processes would be interpreted from the ridge.

Calumet. The interpretive program at Calumet would be the same as alternative 1. Mining company operations and the company's relationship to its employees would be highlighted, and walking tours would be provided through the C & H Mine company area and the village.

Preservation and Development

The highest priorities for resource protection are as follows:

Quincy

shaft/hoist house complex – preservation
smelting works – rehabilitation

Calumet

visitor center (if a historic structure was used) – rehabilitation

Other structures within the park boundary could be preserved through local preservation efforts, with technical assistance from the National Park Service. Funding or incentives through the national historic landmarks program could also be available.

Houghton. The Isle Royale administrative functions would be moved to the new Quincy visitor center. The existing facility in Houghton would probably be abandoned, although further study would determine any need for this facility.

Quincy. Historic structures at the Quincy smelting works would be rehabilitated and adaptively used for the visitor center. Space would probably be sufficient to meet administrative and visitor needs for both Isle Royale and the historical park. The site's visual and interpretive values would be preserved. If feasible, a boat dock to accommodate the *Ranger III* would be constructed at the smelter, and access for recreational boating to Isle Royale could be provided as well.

As described for alternative 1, the Quincy shaft/hoist house complex would be restored and preserved.

Calumet. A visitor center would be developed in the C & H Mine area by either adaptively using existing buildings or constructing a new facility, as described for alternative 1.

Access. Providing public transportation between the Quincy visitor center at the smelting works and the shaft/hoist houses would be explored. A hiking and motor trail would be developed along the grade that was used by the tram cars. The trail would follow the historic route as closely as possible for approximately 1 mile, thus providing additional interpretive opportunities. For visitor safety, access across M-26 would be controlled, possibly by means of a traffic signal and a crosswalk. Also it might be possible to coordinate with plans to expand the adjacent ski area chair lift across to Houghton.

Visitors would use their private automobiles to travel between Calumet and Quincy. The feasibility of public transit and guided tours would be explored.

Boundaries

The park boundaries would be the same as those for alternative 1, except there would

probably be no NPS facilities in Houghton. The Quincy site would include the shaft/hoist house complex, the area to the east, the smelting works, and the slope of Quincy Hill behind the smelting works (see the Alternative 2 map).

At Calumet the boundary would include the C & H Mine north of the Sixth Street extension (including a corridor along that street) and the residential and commercial areas within the village.

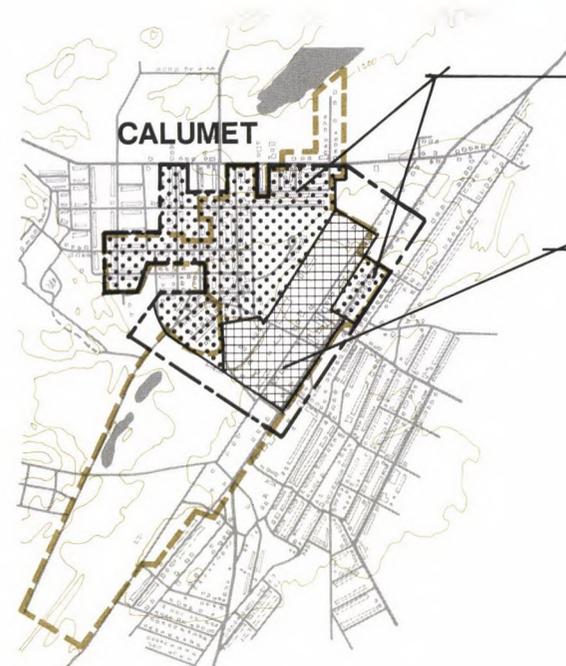
Estimated Costs

Development costs for this alternative would be approximately \$32.1 million, with the majority of the money used for rehabilitation and adaptive use at the smelting works (\$20.6 million), and site and preservation work at the shaft/hoist house complex (\$9.3 million). The cost for a Calumet visitor center would be the same as in alternative 1 (\$2.2 million), as would staffing (\$564,600; see appendixes F and G).

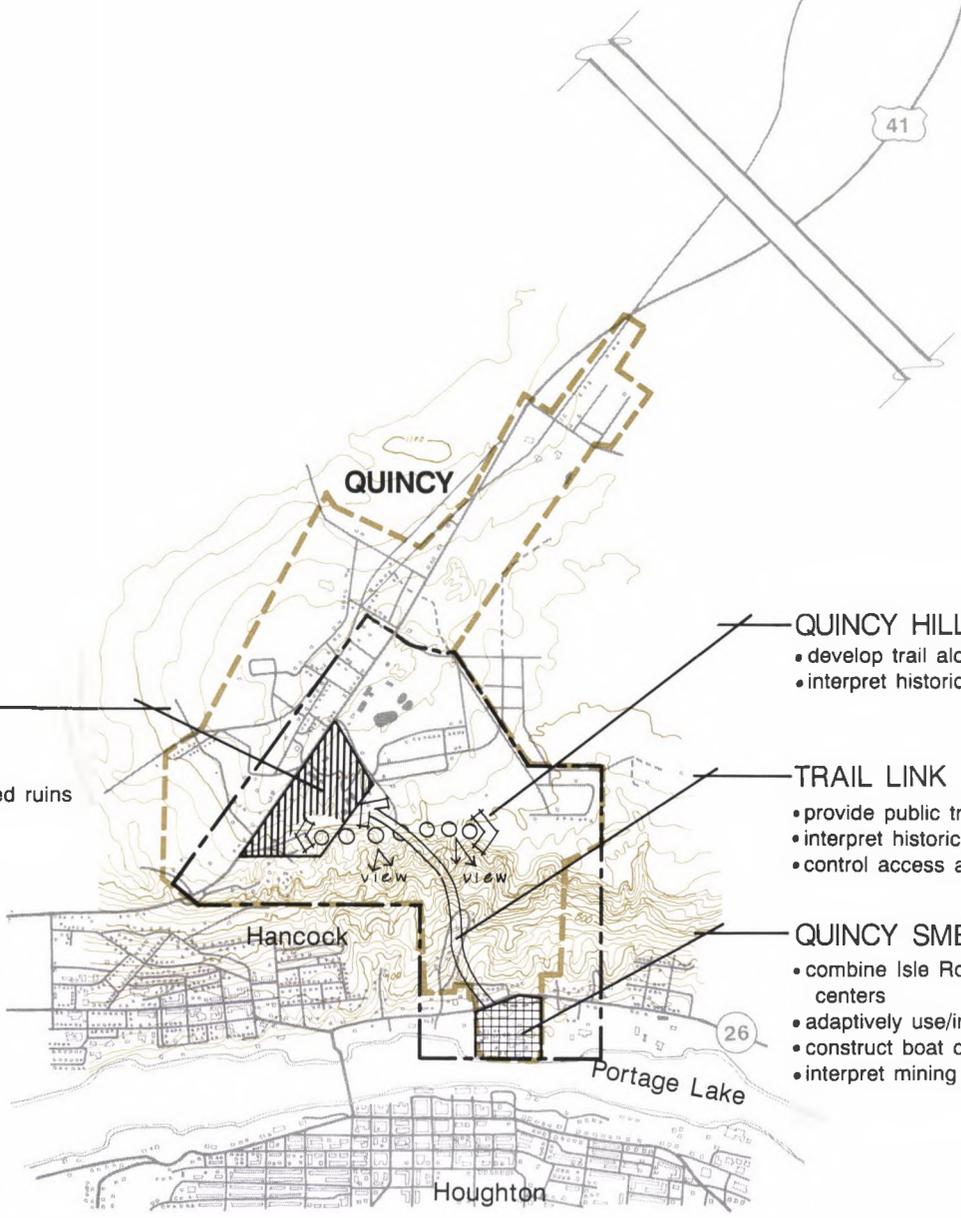
Impacts

Alternative 2 would offer greater protection of cultural resources within the Quincy Mining Company Historic District because structures at the smelting works, as well as at the shaft/hoist house complex, would be preserved.

The construction of a new visitor center in Calumet would have the same impacts as alternative 1 (permanent soil disturbance, vegetation removal, and temporary air quality degradation). No wetlands would be affected. At Quincy additional development activities and visitor use would affect larger areas of soil and vegetation, and some animals would be disturbed or displaced by increased visitor use. Some development could occur in wetlands, but



- TOWN WALKING TOURS**
- interpret business, town life, and home life
- CALUMET AND HECLA MINE BUILDINGS**
- develop visitor center in single building or complex (adaptive use or new construction)
 - provide interpretive walking tours of mine buildings



- QUINCY SHAFT/HOIST HOUSE COMPLEX**
- preserve existing buildings
 - interpret on-site resources
 - develop interpretive trail through stabilized ruins

- QUINCY HILL RIDGE**
- develop trail along abandoned train track
 - interpret historic and scenic views
- TRAIL LINK**
- provide public transit and access corridor
 - interpret historic tram route
 - control access across M-26
- QUINCY SMELTING WORKS**
- combine Isle Royale/Keweenaw park visitor centers
 - adaptively use/interpret historic structures
 - construct boat docks for *Ranger III* and visitors
 - interpret mining technology

LEGEND

-  VISITOR CENTER
-  ON-SITE INTERPRETATION-FACILITY DEVELOPMENT
-  ON-SITE INTERPRETATION-OUTDOOR EXPERIENCE
-  PROPOSED PARK BOUNDARY
-  NATIONAL HISTORIC LANDMARK BOUNDARY
-  RECREATED HISTORIC INTERIOR
-  ADAPTIVE USE WITH INTERPRETATION OF HISTORIC INTERIOR
-  PUBLIC ACCESS
-  PUBLIC TRANSIT AND ACCESS
-  VIEW



ALTERNATIVE 2: Increased Preservation and On-Site Interpretation

PROPOSED KEWEENAW NATIONAL HISTORICAL PARK

no adverse effects are expected. At both sites disturbed areas would be revegetated.

No adverse impacts on endangered or threatened plants and animals listed by the federal or state governments would be expected because areas would be studied for the presence of such species before any construction activities.

Developing a new boat dock for the *Ranger III* adjacent to the Quincy smelting works would require dredging of the canal area. Dredged material would be hauled to a deposition site established by the Corps of Engineers near the northwest entry of the Portage Canal into Lake Superior. The presence of hazardous wastes within sediments at the site is unknown.

Vehicle traffic and congestion would likely increase in and near Hancock and Calumet. Traffic impacts in Hancock could be mitigated by developing a transportation system between the Quincy shaft/hoist house complex and the smelting works so visitors would not have to drive through Hancock for access to the mine site.

Any properties acquired by the federal government would be removed from local tax rolls. A few more properties could be

acquired under this alternative than under alternative 1. Any loss of tax revenue would be partially mitigated by payments in lieu of taxes.

Greater demand could be placed on public facilities and utilities, particularly in Hancock and Calumet. This would include increased water and sewer capacity, improved sidewalks and street routes, parking areas, public restrooms, traffic regulation, and police protection.

Additional tourist income and indirect support of businesses such as restaurants and recreation developments would probably be greater than under alternative 1 because of more development.

Greater interpretive development at the Quincy Mine would offer visitors a better understanding of Michigan copper mining than under alternative 1.

Proposed construction under alternative 2 would temporarily benefit the local economy, if materials and labor were acquired locally. The greatest impact would be in the Hancock and Calumet areas. Removing the Isle Royale facilities at Houghton could adversely affect the economy of that community.

ALTERNATIVE 3 - MODERATE PRESERVATION AND ON-SITE INTERPRETATION

The goal of alternative 3 would be to preserve a core of resources that illustrate all aspects of copper mining and to interpret these resources for visitors. In addition to stabilizing and preserving structures at the Quincy smelting works and the shaft/hoist house complex, the machine/blacksmith shop complex would be rehabilitated and adaptively used as a visitor center. To round out the interpretive story at Quincy, the Lower Pewabic housing area would be interpreted. To complement the visitor experience in Calumet, selected structures in the village's commercial and residential areas would be rehabilitated and adaptively used to suggest to visitors what the area might have looked like. The proposals for a Calumet visitor center and other interpretive activities would be the same as described for alternatives 1 and 2.

Interpretation

The interpretive story would build on what was proposed for alternative 2, with somewhat more interpretation of the technology of mining. On-site interpretive activities would give visitors more opportunities to imagine what the areas would have been like during the height of the mining era.

Quincy. A visitor center in the machine/blacksmith shop buildings on the crest of Quincy Hill would orient visitors to the mine site and introduce them to the copper mining process. The technical aspects of mining would be covered through on-site activities at the adjacent shaft/hoist house complex, and the interpretive program now operated by the Quincy Mine Hoist Association would be expanded.

Loop trails with interpretive exhibits would be developed through the Lower

Pewabic housing area adjacent to the visitor center and the shaft/hoist house complex. The relationship between the company and the miners would be the theme for on-site interpretation. The historic tram route from the shaft/hoist house complex to the smelting works would also be interpreted.

A self-guided interpretive trail would be developed at the smelting works.

Calumet. Interpretation at the Calumet visitor center would be the same as described for alternatives 1 and 2. Walking tours through the mine area and the village would focus on business, town, and home life.

To complement interpretive activities under this alternative, selected buildings in the village would be rehabilitated and adaptively used, giving visitors a chance to become more acquainted with life during the mining era. The park would also sponsor various programs, events, and activities to commemorate the mining activities and the various ethnic groups who came to live and work on the Keweenaw Peninsula.

Preservation and Development

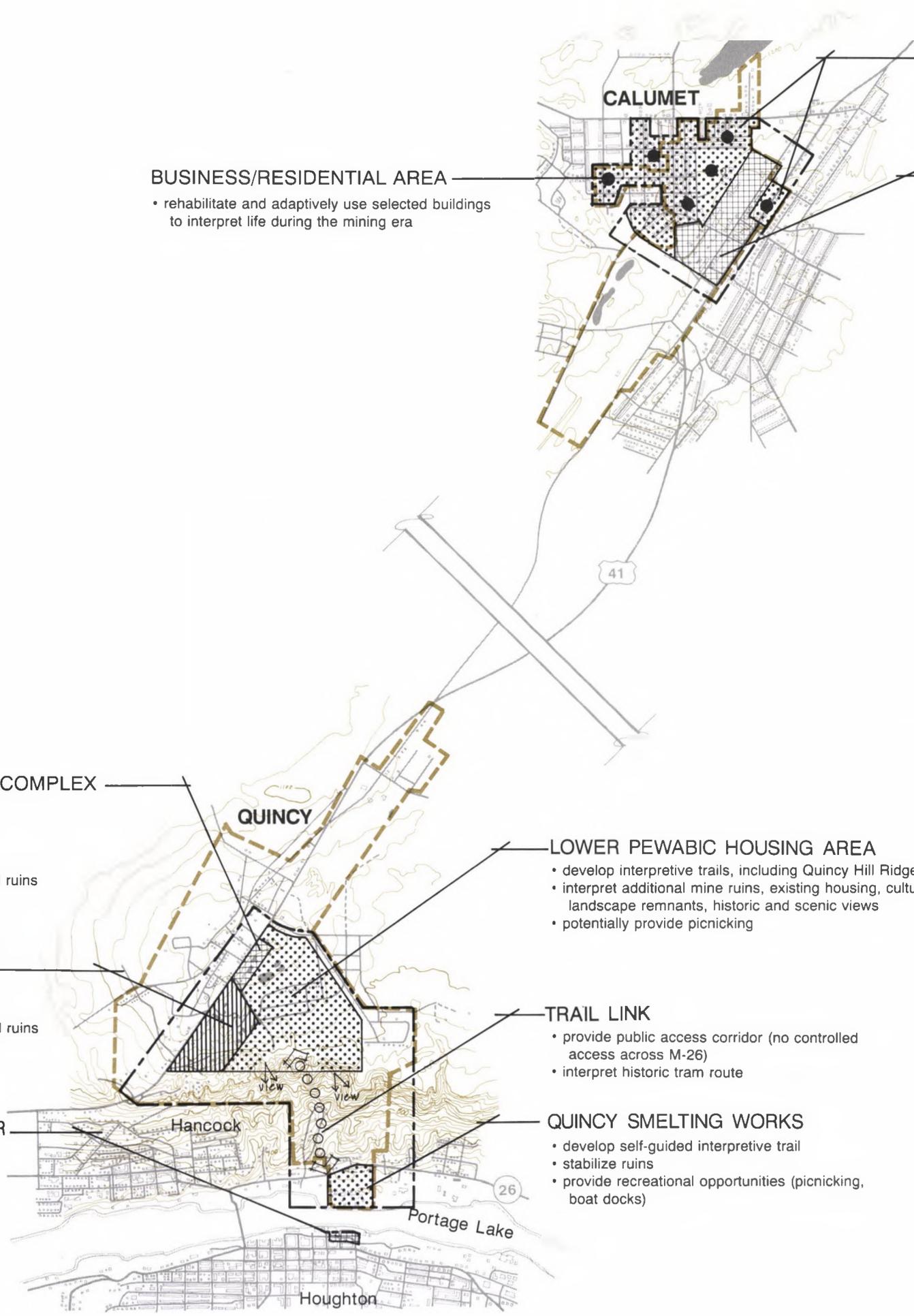
Resource preservation priorities would be as follows:

Quincy

- shaft/hoist house complex – preservation
- smelting works – stabilization
- machine/blacksmith shop complex – rehabilitation

Calumet

- visitor center (if a historic structure was used) – rehabilitation
- selected buildings in the village's commercial and residential areas – rehabilitation



TOWN WALKING TOURS AND FESTIVALS

- interpret business, town life, and home life
- sponsor commemorative festivals and programs

BUSINESS/RESIDENTIAL AREA

- rehabilitate and adaptively use selected buildings to interpret life during the mining era

CALUMET AND HECLA MINE BUILDINGS

- develop visitor center in single building or complex (adaptive use or new construction)
- provide interpretive walking tours of mine buildings

MACHINE/BLACKSMITH SHOP COMPLEX

- adaptively use as visitor center
- accommodate Isle Royale administrative functions
- interpret mining technology
- develop interpretive trail through stabilized ruins

LOWER PEWABIC HOUSING AREA

- develop interpretive trails, including Quincy Hill Ridge
- interpret additional mine ruins, existing housing, cultural landscape remnants, historic and scenic views
- potentially provide picnicking

QUINCY SHAFT/HOIST HOUSE COMPLEX

- preserve existing buildings
- interpret on-site resources
- develop interpretive trail through stabilized ruins

TRAIL LINK

- provide public access corridor (no controlled access across M-26)
- interpret historic tram route

ISLE ROYALE VISITOR CENTER AT HOUGHTON

- relocate administrative functions to machine/blacksmith shop complex
- potentially expand visitor services

QUINCY SMELTING WORKS

- develop self-guided interpretive trail
- stabilize ruins
- provide recreational opportunities (picnicking, boat docks)

LEGEND

-  VISITOR CENTER
-  ON-SITE INTERPRETATION-FACILITY DEVELOPMENT
-  ON-SITE INTERPRETATION-OUTDOOR EXPERIENCE
-  PROPOSED PARK BOUNDARY
-  NATIONAL HISTORIC LANDMARK BOUNDARY
-  RECREATED HISTORIC INTERIOR
-  ADAPTIVE USE WITH INTERPRETATION OF HISTORIC INTERIOR
-  PUBLIC ACCESS
-  PUBLIC TRANSIT AND ACCESS
-  VIEW



**ALTERNATIVE 3:
Moderate Preservation
and On-Site Interpretation**

**PROPOSED KEWEENAW NATIONAL
HISTORICAL PARK**

Other structures within the park boundaries would be eligible for assistance under the national historic landmarks program or through local preservation efforts.

Houghton. Isle Royale administrative functions would be moved to the Quincy visitor center. The Isle Royale facility at Houghton would continue in use because water access is needed for the *Ranger III*. Vacated space at the Houghton facility could be used for expanded Isle Royale visitor services.

Quincy. The machine/blacksmith shop buildings would be adaptively used for a visitor center and administrative offices for both the proposed national historical park and Isle Royale.

The Quincy shaft/hoist house complex would be restored and preserved, as described for alternatives 1 and 2.

Interpretive trails would be developed through the Lower Pewabic housing area and on the ridge overlooking Portage Lake and Houghton. Future studies would specify how park-related activities would be managed to minimize impacts on residents in the Lower Pewabic area. There is no plan to acquire the houses themselves, just the surrounding land. The area would be managed by the park, but not owned by it. The trails would be accessible to disabled visitors.

As described for alternative 1, the Quincy smelting works would be developed for on-site interpretation. The buildings would be stabilized, and interpretive walks and recreational opportunities could be provided.

Calumet. As described for the previous alternatives, a visitor center in the C & H Mine area would be developed by adaptively using existing buildings or by constructing a new facility.

Selected buildings in the commercial and housing areas would be rehabilitated and adaptively used. No specific sites have been identified; for planning purposes it was assumed that six sites total would be developed. Only the selected sites would be acquired in this area, and the rest would remain in private ownership.

Access. An informal trail would be established to link the Quincy smelting works and the shaft/hoist house complex. This trail could be used either for hiking, bicycling, snowmobiling, or skiing. A formal crossing of M-26 would not be required because activities and development at the smelter would be limited to outdoor on-site interpretation.

Visitors would drive their own vehicles between Calumet and Quincy. If warranted by demand, public transit or guided tours could be provided.

Boundaries

The park boundaries would be the same as for alternative 1. At Quincy the boundary would include the shaft/hoist house complex, the Lower Pewabic housing area, the south slope of Quincy Hill, and the smelting works. At Calumet the boundary would include the C & H Mine north of the Sixth Street extension, plus the residential and commercial areas within the village.

Estimated Costs

Development costs for alternative 3 would be approximately \$41.1 million – \$16.4 million for stabilization, preservation, and adaptive use at the Quincy Mine; \$7.1 million for the smelting works; and \$17.6 million for a Calumet visitor center and building restoration (see appendix F). Annual staffing and operating costs would be \$727,800 (see appendix G).

Impacts

Alternative 3 would preserve and protect the same cultural resources within the Calumet and Quincy historic districts as alternative 2.

As described for alternatives 1 and 2, the construction of a visitor center in Calumet and visitor support development at Quincy would affect soils, vegetation, and air quality (temporarily during construction). Disturbed areas would be revegetated. Visitor use at Quincy could disturb or displace some animals. Wetlands would not be affected.

No adverse impacts on endangered or threatened plants and animals would be expected. Additional studies would be conducted to ensure that no state-listed threatened plant species were present in construction areas.

Automobile and recreation vehicle traffic and congestion would increase in and near Hancock and Calumet, as described for alternative 2.

Properties that were acquired by the federal government would be removed from local tax rolls. This impact would probably be greater under this alternative than

under alternative 2. The loss of tax revenues would be partially mitigated by payments in lieu of taxes.

Additional public facilities and utilities could be required, primarily in Hancock and Calumet. Improvements would include more water and sewer capacity, upgraded sidewalks and street routes, parking areas, public restrooms, traffic regulation, and police protection.

Greater tourist revenues would enhance development opportunities for tourist-related businesses, such as restaurants and recreation developments. Additional park-related activities in Calumet would make this impact more significant than under alternative 1 or 2.

Offering more interpretive opportunities at Calumet and Quincy would enhance visitors' understanding of mining technology and workers' lifestyles.

Economic benefits related to development under this alternative would be greater than under alternative 1 or 2. Local economic conditions, particularly in the Hancock and Calumet areas, would be the most affected, if materials and labor were locally acquired.

ALTERNATIVE 4 - LARGE-SCALE PRESERVATION AND INTENSIVE ON-SITE INTERPRETATION

The emphasis of alternative 4 would be the development of mining technology from the 1840s through the 1960s. Resource preservation activities and interpretive programs at both Quincy and Calumet would help to recreate for visitors a period when the copper mines were the lifeblood of the Keweenaw Peninsula. On-site interpretation would be the most in-depth of any alternative, offering visitors a comprehensive look at mine operations and community life. To the extent practicable, mining equipment at Quincy would be restored to operating condition, and underground tours would potentially be offered at the no. 2 shaft. Like alternative 3, visitor centers would be developed at Calumet and the Quincy machine/blacksmith shop complex.

Interpretation

This alternative would seek to foster in visitors a firsthand feeling for what it would have been like to live and work on the Keweenaw Peninsula during the copper-mining era. The concept is to create a setting that would make visitors feel as though they had stepped back in time.

Quincy. Interpretive media at the blacksmith/machine shop visitor center would treat all facets of the mining story, from the development of innovative techniques to miners' daily lives. If feasible the no. 2 shaft would be opened for underground tours. To complete the overview of mining technology, the operation of the 1960s Quincy/Homestake electric hoist and headframe at the no. 8 shaft would be explained.

As described for alternative 3, this alternative would also provide on-site

interpretation at the Quincy shaft/hoist house complex and in the Lower Pewabic housing area.

Calumet. Interpretive activities at Calumet would also be more comprehensive. At the visitor center interpretive media would cover the growth of the mining community, from the 1860s through the 1960s. As described for the other alternatives, walking tours would be provided through the mine area and the village's commercial and residential areas. The feasibility of restoring selected houses, businesses, and social establishments as museums to fully depict community life would be studied. Various programs, events, and activities would be sponsored by the park to commemorate significant events in the history of the C & H Mine, along with the ethnic groups that contributed to Calumet's social fabric.

Preservation and Development

Under alternative 4 the following priorities would be established for resource preservation:

Quincy

- shaft/hoist house complex – preservation
- smelting works – preservation
- machine/blacksmith shop complex – rehabilitation
- Homestake Mine buildings – preservation

Calumet

- Visitor center (if a historic structure was used) – rehabilitation
- Commercial and residential town sites – restoration

Other structures within the park boundaries would be eligible for assistance under the national historic landmarks program or through local preservation efforts.

Houghton. Like alternative 3, Isle Royale administrative functions would be moved to the Quincy visitor center. The Houghton facility would continue to provide water access for the *Ranger III*. Vacated space at Houghton could be used for expanded Isle Royale visitor services.

Quincy. As described for alternative 3, a visitor center would be developed at the blacksmith/machine shop complex, and the Isle Royale administrative functions would be moved to this location.

The shaft/hoist house complex would be restored to operating condition, and the mine would be opened for underground tours, if feasible. (This proposal would require additional study.)

Trails would be developed near the machine/blacksmith shop complex, the shaft/hoist house complex, the Lower Pewabic housing area, and the Quincy/Homestake shaft house. Recreational opportunities (for example, picnicking areas) could also be provided. No houses would be acquired in the Pewabic area, just the surrounding land. The area would be managed by the park, but not owned by it.

The machinery and buildings at the smelting works would be preserved and restored to working order, if feasible.

Calumet. As described for the other alternatives, the visitor center at the C & H Mine could be either a single structure or a complex of buildings. Existing buildings would be adaptively used, or a new facility could be constructed.

Selected structures in the commercial and residential sectors of the city would be restored and operated as museums. No specific sites have been identified; for planning purposes it was assumed a total of six sites would be developed. Only these sites would be acquired, and other sites would remain in private ownership. The structures would only be acquired if they met NPS cultural resource management standards (see page 57). If these standards were not met, then the structures would not be purchased by the Park Service. All buildings in this area are now privately owned.

Access. An access corridor would be provided between the Quincy smelting works and the mine site on Quincy Hill. Access across M-26 would be controlled.

Visitors would drive their private vehicles between Calumet and Quincy. The possibility of offering public transportation and guided tours would be explored.

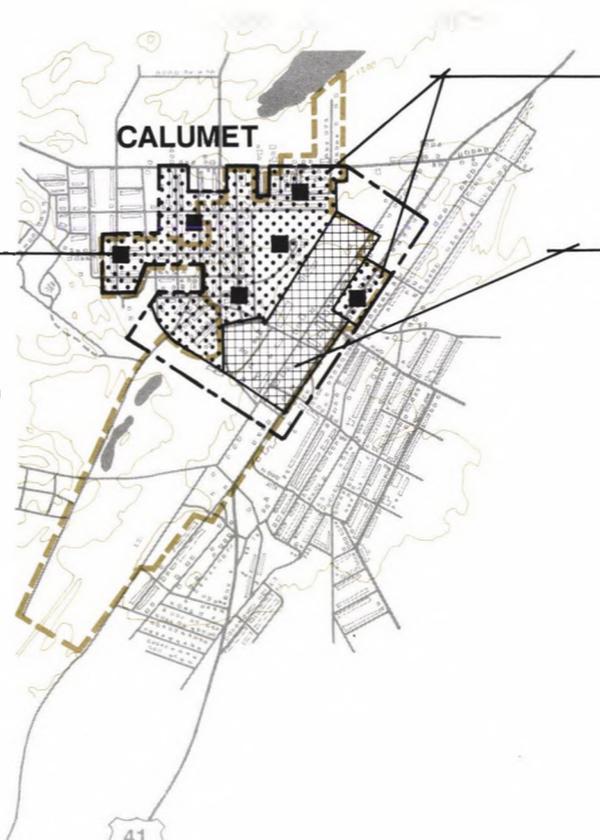
Boundaries

The park boundary at Quincy would be the same as the preceding alternatives, except it would be extended to the north to include the Quincy/Homestake headframe (see the Alternative 4 map).

At Calumet the boundary would be the same as the preceding alternatives.

Estimated Cost

Development, rehabilitation, and preservation costs for alternative 4 would total an estimated \$55.3 million. Approximately \$23.5 million would be spent at the Quincy Mine, \$12.2 million at the smelting works, and \$19.6 million at Calumet (see appendix F). Staffing and operating costs would total \$801,200 (see appendix G).



TOWN WALKING TOURS AND FESTIVALS

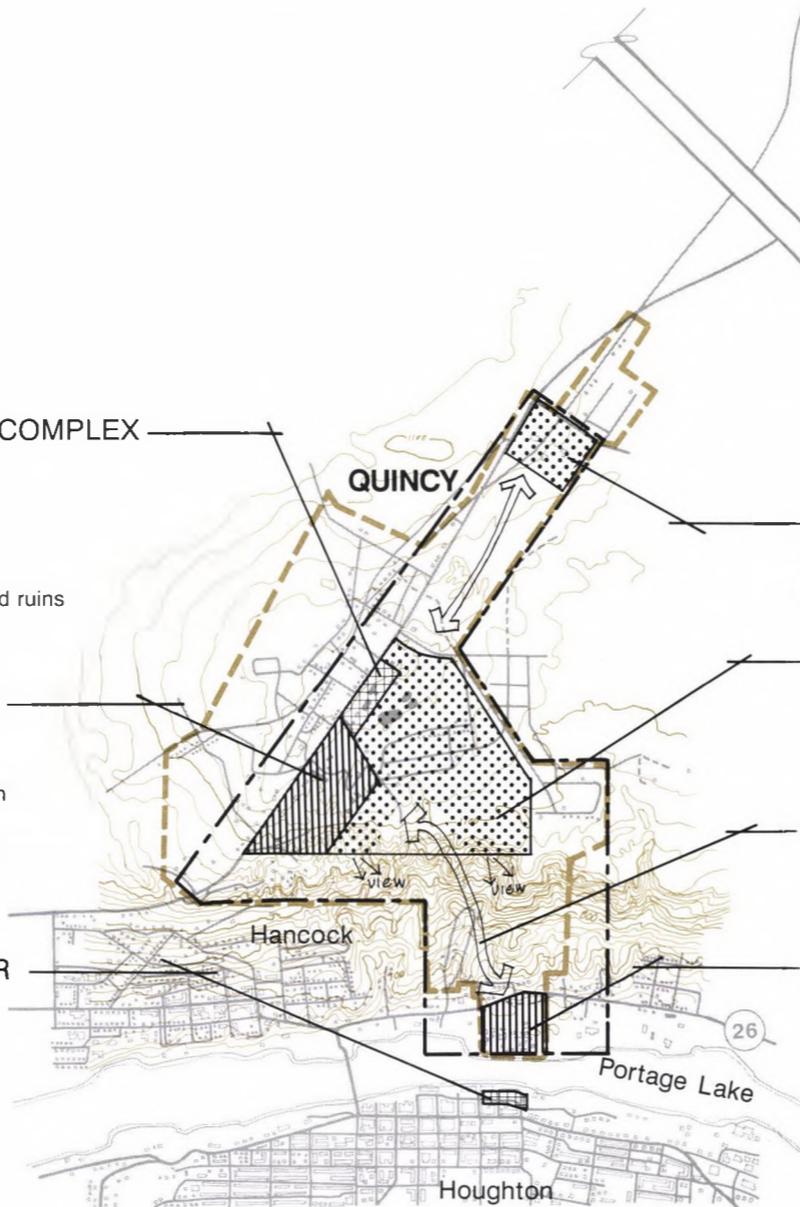
- interpret business, town life, and home life
- sponsor commemorative festivals and programs

BUSINESS/RESIDENTIAL AREA

- restore selected structures (houses, businesses, social establishments) as museums to illustrate community life
- for NPS involvement, must be consistent with *Cultural Resources Management Guideline (NPS-28)*

CALUMET AND HECLA MINE BUILDINGS

- develop visitor center in single building or complex (adaptive use or new construction)
- provide interpretive walking tours of mine buildings



MACHINE/BLACKSMITH SHOP COMPLEX

- adaptively use as visitor center
- accommodate Isle Royale administrative functions
- provide in-depth interpretation of mining technology
- develop interpretive trails through stabilized ruins

QUINCY/HOMESTAKE SHAFT HOUSE

- interpret recent mining technology
- provide public access corridor

QUINCY SHAFT/HOIST HOUSE COMPLEX

- interpret on-site resources
- restore shaft or hoist to operating condition
- open mine shaft for underground tours
- develop interpretive trail through stabilized building ruins

LOWER PEWABIC HOUSING AREA

- develop interpretive trails
- interpret existing housing, cultural landscape remnants, historic and scenic views
- potentially provide picnicking

TRAIL LINK

- provide public transit and access corridor
- interpret historic tram route
- control access across M-26

ISLE ROYALE VISITOR CENTER AT HOUGHTON

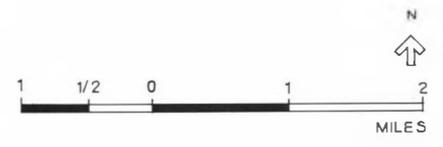
- relocate administrative functions to machine/blacksmith shop complex
- potentially expand visitor services

QUINCY SMELTING WORKS

- preserve buildings and machinery
- intensively interpret existing resources

LEGEND

-  VISITOR CENTER
-  ON-SITE INTERPRETATION-FACILITY DEVELOPMENT
-  ON-SITE INTERPRETATION-OUTDOOR EXPERIENCE
-  PROPOSED PARK BOUNDARY
-  NATIONAL HISTORIC LANDMARK BOUNDARY
-  RECREATED HISTORIC INTERIOR
-  ADAPTIVE USE WITH INTERPRETATION OF HISTORIC INTERIOR
-  PUBLIC ACCESS
-  PUBLIC TRANSIT AND ACCESS
-  VIEW



**ALTERNATIVE 4:
Large-Scale Preservation and
Intensive On-Site Interpretation**

**PROPOSED KEWEENAW NATIONAL
HISTORICAL PARK**

MICHIGAN

Impacts

Alternative 4 would provide the highest level of preservation for historic resources within the national historical park.

As described for the other alternatives, the construction of a Calumet visitor center and visitor-related development at Quincy would permanently disturb soils, eliminate vegetation, and temporarily degrade air quality. Animals at the Quincy site could be disturbed or displaced as a result of greater visitor use. Disturbed areas would be revegetated. No wetlands would be affected. Endangered or threatened plants and animals should not be affected, and studies would be conducted to ensure that no state-listed threatened plant species were present.

Like alternatives 2 and 3, vehicle traffic and congestion would increase, particularly in Hancock and Calumet.

This alternative would probably result in the most acquisition of private properties for the national historical park. If these properties were acquired by the federal government, then they would be removed from local tax rolls. Any loss of property tax revenues would be partially mitigated through payments in lieu of taxes.

Greater demands would be placed on public facilities and utilities, primarily in Hancock and Calumet. Improvements would include more water and sewer capacity, better sidewalks and street routes, parking areas, public restrooms, traffic regulation, and police protection.

Because of its expanded scope, alternative 4 could generate the highest visitation of any alternative. Increased tourist revenues would particularly benefit Hancock and Calumet and would enhance business opportunities for services such as restaurants and recreation developments.

Visitors would have a greater opportunity under this alternative to learn about the technical aspects of mining and copper production, workers' lifestyles, the relationship between the mining companies and their workers, and the assimilation of ethnic groups into American culture.

Construction and rehabilitation projects would potentially have a greater economic impact than the other alternatives if labor and materials were locally acquired. The greatest impact would be in the Hancock and Calumet areas.

ALTERNATIVE 5 - LIMITED PRESERVATION AND MODERATE ON-SITE INTERPRETATION FOCUSING ON CALUMET

Under alternative 5 preservation and interpretive activities for the national historical park would be focused at Calumet. Only one visitor center would be established for the park, and the level of interpretation would be the same as alternative 4, emphasizing the entire story of copper mining and community life on the Keweenaw Peninsula. Preservation efforts would extend to the Osceola Mine, as well as any mine structures adaptively used for a visitor center or village structures restored as museums. Preservation and interpretation at the Quincy site would be limited to the shaft/hoist house complex.

Interpretation

The interpretive program would have the same goals as described for alternative 4 – to help visitors understand the copper mining era and to empathize with the people who lived and worked here.

Quincy. Interpretive activities would be limited to the shaft/hoist house complex, and an interpretive trail would be developed through the stabilized structures.

Calumet. The park visitor center at Calumet would introduce visitors to the story of Michigan’s copper country and would provide an in-depth look at mining technology, the economic aspects of mining, and the story of the communities associated with the mining companies.

On-site interpretation would include walking tours through the C & H Mine area and through the commercial and residential areas of the village. Selected houses, businesses, and social establish-

ments would be restored as museums, as described in alternative 4.

The interpretive program would be extended to the Osceola Mine, where the shaft and hoist house would be interpreted, along with more recent mining techniques. Interpretation could also include structures that used to exist between the C & H Mine and the Osceola Mine (for example, the shaft/rockhouses).

As described for alternatives 3 and 4, the park would sponsor various programs, events, and activities to commemorate the mining story and the various cultural groups that came to live and work on the Keweenaw Peninsula.

Preservation and Development

The following priorities would be established for resource preservation activities:

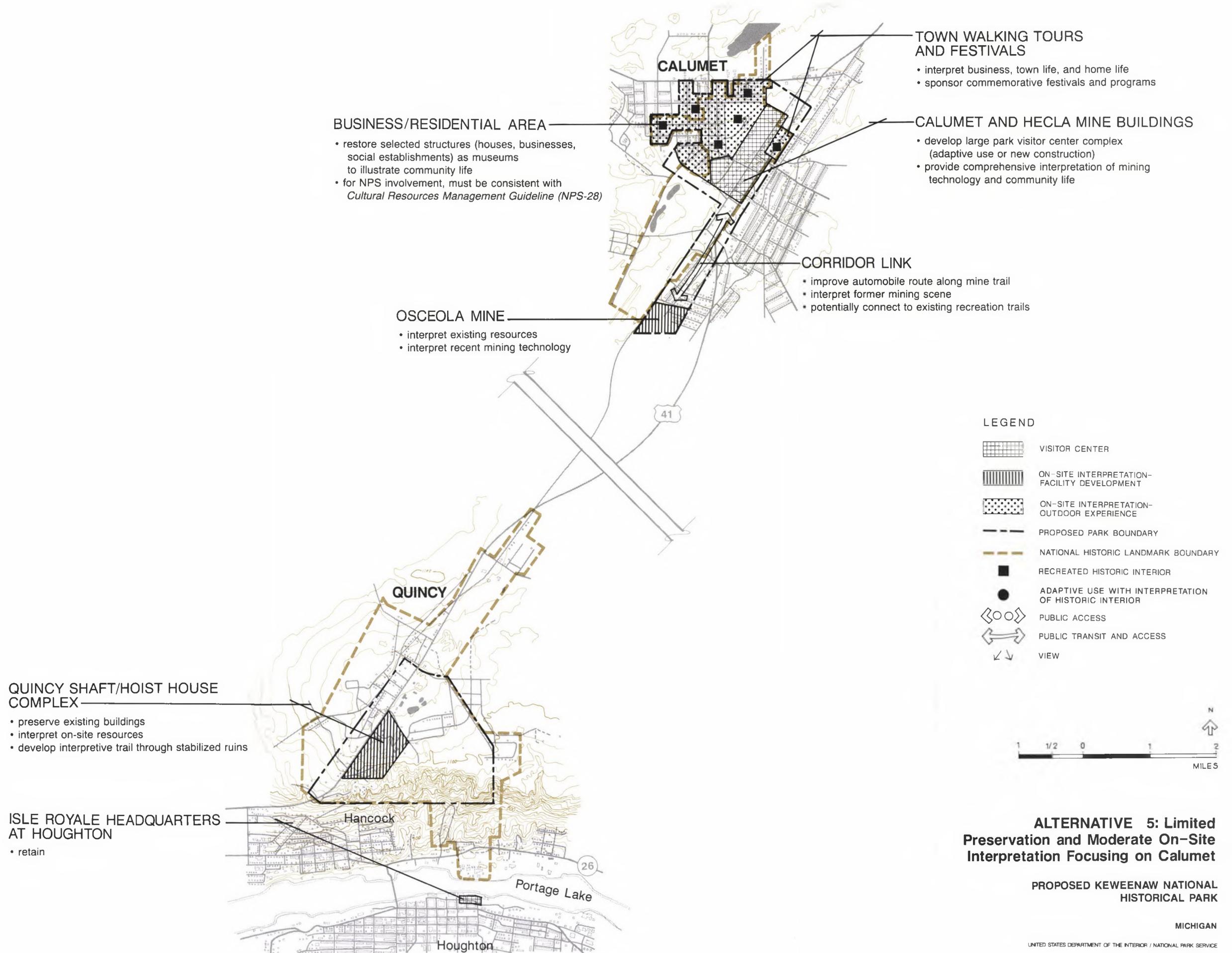
Calumet

- Visitor center (if a historic structure or complex was used) – rehabilitation
- Selected commercial and residential structures in the village – restoration
- Osceola Mine – preservation

Other structures within the park boundaries would be eligible for assistance under the national historic landmarks program or through local preservation efforts.

Houghton. The Isle Royale headquarters in Houghton would be retained, and no functions would be relocated.

Quincy. The shaft/hoist house complex would be preserved, as described for the other alternatives. The smelting works would be allowed to deteriorate, unless the current owners decided to develop it for their own purposes.



Calumet. The visitor center for the national historical park would be developed at the C & H Mine. However, because this would be the only such facility in the park, it would require more space than under the other alternatives. A complex of buildings rather than a single structure would probably be required, and either existing buildings could be adaptively used, or a new facility could be built.

The feasibility of restoring selected houses, businesses, and social establishments as museums to fully depict community life would be studied. No specific sites have been identified; for planning purposes it was assumed that six sites total would be developed. Only the selected sites would be acquired in this area, and the rest would remain in private ownership. These structures would only be acquired if they met NPS cultural resource management standards (see page 57). If these standards were not met, then the structures would not be purchased by the Park Service. All buildings in this area are now privately owned.

Access. Both vehicular and nonmotorized access would be needed between the Osceola Mine and Calumet. Opportunities exist for recreational links and year-round use.

Visitors would generally drive to the main Calumet visitor center. From there they would walk to the museums and take the interpretive walking tours.

Access to the Quincy shaft/hoist complex would be by private vehicle, although if justified by demand, guided tours could be provided from Calumet.

Boundaries

The park boundary at Quincy would include the shaft/hoist house complex and

the Lower Pewabic housing area to the east. The boundary would not include the smelting works or the face of Quincy Hill (see the map for alternative 5).

At Calumet the boundary would include residential and commercial areas in the village and all of the C & H Mine, including the Osceola Mine at the south end of the site.

Estimated Cost

Alternative 5 would cost approximately \$30.8 million to implement. About \$6.5 million would be required to preserve and develop the Quincy shaft/hoist house complex for visitor use. Construction and preservation activities at Calumet would require about \$24.3 million (see appendix F for a detailed cost estimate). Annual staffing and operating costs would be \$564,600 (see appendix G).

Impacts

Alternative 5 would provide a higher level of preservation and protection of cultural resources at Calumet.

As described for the other alternatives, constructing a visitor center at Calumet, if required, as well as visitor trails and picnic areas at Quincy, would disturb soils, remove vegetation, and temporarily degrade air quality. At the Quincy site visitor use would disturb or displace animals, although this effect would be less than under the other alternatives. Disturbed areas would be revegetated. Wetlands would not be affected. Additional studies could be needed before construction to determine whether any state-listed threatened plant species are present at either Calumet or Quincy. However, no adverse impacts on endangered or

threatened plants and animals would be expected.

The Quincy shaft/hoist house complex would be preserved, but other structures at this site would continue to deteriorate and would eventually be lost. The smelting works would not be stabilized and could be lost if the owners took no action to stabilize or interpret the structures.

Increases in automobile and recreation vehicle traffic and congestion would occur primarily in the Calumet area.

Potential federal acquisition of historic sites in Calumet would remove these properties from local tax rolls. Any resulting revenue losses would be partially mitigated by payments in lieu of taxes.

Public facilities and utilities in the Calumet area would probably have to be upgraded to meet expanded visitor needs. Actions would include increasing water and sewer capacity, constructing additional sidewalks, improving existing sidewalks

and street routes, providing parking areas and public restrooms, regulating traffic, and increasing police protection.

Higher tourist revenues within Calumet would increase economic development opportunities for tourist-related businesses, such as restaurants and recreation developments.

Visitors would have opportunities to learn about the technical aspects of conglomerate lode copper mining at the C & H Mine, as well as the social and economic aspects of life in Calumet. However, restricting on-site interpretation at Quincy to the shaft/hoist house complex would somewhat limit the scope of the visitor experience in terms of being able to compare operating procedures and working conditions at the two mining companies.

Construction and preservation activities would benefit the local economy, particularly in the Calumet area, if local materials and labor were used.

TABLE 5: SUMMARY OF PARK DEVELOPMENT ALTERNATIVES AND ESTIMATED COSTS

<u>LOCATION/AREA</u>	<u>ALTERNATIVE 1</u>	<u>ALTERNATIVE 2</u>	<u>ALTERNATIVE 3</u>	<u>ALTERNATIVE 4</u>	<u>ALTERNATIVE 5</u>
HOUGHTON					
Isle Royale Headquarters	Develop new visitor center for both Isle Royal and national historical park; interpret mining technology	Move Isle Royale headquarters to visitor center at Quincy smelting works; potentially abandon existing facility	Move Isle Royale headquarters to visitor center at Quincy machine/blacksmith shop complex; potentially expand Isle Royale visitor services at Houghton	Same as alternative 3	Continue existing operations
Development Cost	\$6,208,000	0	0	0	0
QUINCY MINING COMPANY HISTORIC DISTRICT					
Shaft/Hoist House Complex	Preserve existing buildings and stabilize structures; provide on-site interpretation; develop interpretive trail	Same as alternative 1	Same as alternative 1	Same as alternative 1 except restore shaft/hoist to operating condition; potentially open mine shaft for tours	Same as alternative 1
Machine/Blacksmith Shop Complex	No action	No action	Rehabilitate buildings and adaptively use as visitor center for park and for Isle Royale headquarters; interpret mining technology; develop interpretive trails	Same as alternative 3 except provide in-depth interpretation	No action
Lower Pewabic Housing Area	No action	No action	Develop interpretive trails; interpret mine ruins, housing, cultural landscape remnants; potentially provide picnicking	Same as alternative 3	No action
Quincy Hill Ridge and Slope	Develop trail; provide public access corridor (no controlled access across M-26); interpret historic tram route	Same as alternative 1, except control access across M-26	Same as alternative 1	Same as alternative 2	No action
Quincy/Homestake Shaft House	No action	No action	No action	Provide access corridor; interpret recent mining technology	No action
Development Cost	\$7,381,000	\$9,344,000	\$16,407,000	\$23,481,000	\$6,521,000

PARK DEVELOPMENT ALTERNATIVES AND MANAGEMENT OPTIONS

<u>LOCATION/AREA</u>	<u>ALTERNATIVE 1</u>	<u>ALTERNATIVE 2</u>	<u>ALTERNATIVE 3</u>	<u>ALTERNATIVE 4</u>	<u>ALTERNATIVE 5</u>
Smelting Works	Stabilize structures; develop self-guided interpretive trail; provide recreational opportunities	Rehabilitate buildings and adaptively use as visitor center for park and for Isle Royale headquarters; interpret mining technology; potentially construct visitor boat dock	Same as alternative 1	Preserve buildings; restore machinery to working order if possible; provide in-depth interpretation	No action
Development Cost	\$7,098,000	\$20,618,000	\$7,098,000	\$12,167,000	0
CALUMET HISTORIC DISTRICT					
C & H Mine	Develop visitor center (adaptive use or new facility); provide interpretive walking tours	Same as alternative 1	Same as alternative 1	Same as alternative 1	Develop large park visitor center complex (adaptive use or new facility)
Business/Residential Areas	Provide town walking tours; interpret business, town life, and home life	Same as alternative 1	Same as alternative 1 plus rehabilitate and adaptively use selected buildings for modern purposes; sponsor commemorative festivals and programs	Same as alternative 3 except restore selected buildings as museums to illustrate community life	Same as alternative 4
Osceola Mine	No action	No action	No action	No action	Preserve buildings, interpret existing resources and recent mining technology
Development Cost	\$2,171,000	\$2,171,000	\$17,607,000	\$19,641,000	\$24,288,000
BOUNDARIES					
Quincy	Shaft/hoist house complex, smelting works, Lower Pewabic housing area	Same as alternative 1	Same as alternative 1	Same as alternative 1, plus Quincy/Home-stake shaft house	Shaft/hoist house complex, Lower Pewabic housing area
Calumet	Northern portion of C & H Mine, business and residential areas in village	Same as alternative 1	Same as alternative 1	Same as alternative 1	Same as alternative 1, plus Osceola Mine
ESTIMATED COSTS					
Total Development Cost	\$22,858,000	\$32,133,000	\$41,112,000	\$55,289,000	\$30,809,000
Annual Staffing/Operating Cost	\$564,600	\$564,600	\$727,800	\$801,200	\$564,600

MANAGEMENT OPTIONS

Several approaches have been considered to preserve and manage the nationally significant resources on Michigan's Keweenaw Peninsula and to commemorate the copper mining story. To date support has been shown at the local, state, and national levels for designating portions of the Quincy Mining Company and Calumet historic districts as a unit of the national park system. The creation of a new national historical park would require legislation by Congress.

As previously discussed, to be eligible for inclusion in the national park system, an area must (1) possess nationally significant natural, cultural, or recreational resources, (2) be a suitable and feasible addition to the system, and (3) require direct NPS management instead of alternative protection by other agencies or the private sector. These criteria are designed to ensure that the national park system includes only outstanding examples of the nation's heritage. They also recognize that inclusion in the national park system is not the only option for preserving the nation's outstanding resources. (The complete text of these criteria, as excerpted from the NPS *Management Policies* [1988], is included in appendix A.)

Congress could also decide to pursue other options to ensure the preservation of the nationally significant resources. One option would be to establish a national heritage area administered by a federal commission. Other options would be to establish an affiliated area of the national park system, with on-site management by a local entity, or to establish a national historical reserve, with management by a special partnership of federal, state, and local governments.

If Congress decided to further limit federal involvement and to encourage state and local initiatives, then either a state or locally managed park area could be established, with assistance from the National Park Service.

These management options are further described below, and the alternatives considered in this document could be adapted to fit any of the options.

These management options have not yet been formally presented to all organizations mentioned in this document. Future meetings and briefings on this document with involved publics and governments will better define and shape these options.

OPTION 1: NPS MANAGEMENT OF A NEW PARK AREA

Under this option Congress would create a new national historical park consisting of the areas outlined in one or more of the alternatives. The park would be administered by the National Park Service and would be subject to its guidelines, regulations, and policies.

A general management plan, development concept plans, and interpretive and resource management plans would be prepared to address specific management and development needs. Cooperative agreements would be developed with private owners of nationally significant properties to provide interpretive and preservation assistance.

OPTION 2: MANAGEMENT OF A NATIONAL HERITAGE AREA BY A FEDERAL COMMISSION

A national heritage area would be created to commemorate the history of copper mining on the Keweenaw Peninsula, and a federal commission would be established by Congress to oversee its management. The National Park Service could manage a small core area in conjunction with cooperative efforts occurring throughout the region, which would then be coordinated and partially funded by the federal commission. The national heritage area could conceivably include all three counties, with a variety of sites and organizations cooperating to promote and manage the historic and recreation resources of the region under a name with national status.

The federal commission would be appointed by the secretary of the interior, with representation from all levels of government and the private sector. The commission would manage the park, define the roles of the participants, and foster communication and coordination between the various entities.

The National Park Service would be the lead federal agency and would have a seat on the commission; however, the commission would have its own professional staff, separate from the Park Service.

Funding for the commission would be through federal appropriations, which would be matched by nonfederal funds. The private sector would be expected to be a major contributor under this option. The commission would be able to use federal funds for specific projects, and the Park Service would have approval rights on federally funded projects.

OPTION 3: LOCAL MANAGEMENT OF AN NPS AFFILIATED AREA

This option would encourage continued local management of the nationally significant resources. The National Park Service would provide technical assistance, and the park would be designated as an affiliated area of the national park system.

Under this option the Quincy Mine Hoist Association could continue operating facilities at the Quincy Mining Company Historic District, and CLK Foresight, Inc., could manage the Calumet Historic District.

Besides allowing NPS technical and financial aid, affiliated status would ensure that the area was mentioned in official NPS publications. The establishment of an affiliated area would require an act of Congress.

Areas that are affiliated with the national park system must meet certain basic operational standards to help ensure a uniformly high quality of visitor services and resource management. Cooperative agreements would be developed to address the following points:

- planning and technical assistance
- preservation standards
- liability and insurance for facilities and employees
- volunteer-in-parks (VIP) status for staff
- fee rates and collection policies
- hours and days of operation
- review and approval of annual budgets

use of the NPS logo on signs and literature

standards for concession operations

content and scope of interpretive programs

review and approval of sales items

limits on uses of appropriated funds for lobbying

nondiscrimination in employment

accessibility for disabled visitors

Not all of these criteria apply to every affiliated area. The cooperative agreements would define those issues that are relevant to the resource and the type of arrangement with the National Park Service.

A line-item appropriation could be established for technical assistance; otherwise, funding for these activities would be added to base operating funds. The continuation of affiliated status would be subject to periodic review to ensure consistency with the standards, and either Congress or the secretary of the interior could withdraw the affiliated designation, based on NPS recommendations.

OPTION 4: STATE OR LOCAL MANAGEMENT OF A NATIONAL HISTORICAL RESERVE

A fourth option is to have Congress establish a national historical reserve that would include the two historic districts. The designated unit would be part of the national park system. Initial planning and management would be undertaken by a special partnership of federal, state, and local governments.

During the initial stages, the National Park Service would be actively involved in planning and management decisions. After a management and development plan was prepared and the initial objectives of the reserve were met, the reserve would be managed by a state or local entity (possibly a commission or a governmental agency). Management funds could still be contributed by the federal government.

The National Park Service, as the federal representative in the partnership, could acquire a small amount of land at the landmark sites to ensure the preservation of significant resources. Or it might be possible to achieve this same objective by purchasing development rights or establishing architectural controls within the most critical areas of the reserve.

OPTION 5: MANAGEMENT OF A STATE PARK BY A STATE COMMISSION

Michigan would establish a new state park, and a commission would be established to oversee its management. The commission would be headed by the governor of Michigan and would include representatives from different levels of government as well as the public. The commission would have its own staff.

The state would be the primary funding source, but the federal government could contribute funding through existing federal programs for specific qualifying projects or through line-item appropriations. Additional funding from the private sector would be necessary.

The National Park Service would not have a central management role at the park, but it could provide technical assistance and support, and it could participate as a member of the commission. Several projects within the two historic districts have

already been undertaken with state funding.

This option would be difficult to implement because state funds are currently limited, and cutbacks in federally funded programs are anticipated.

OPTION 6: MANAGEMENT OF THE HISTORIC DISTRICT BY A FEDERAL/LOCAL PARTNERSHIP

Under this option a management partnership would be developed between the National Park Service and local organizations to administer the Quincy Mining Company and Calumet historic districts. The partnership could include local entities such as CLK Foresight, Inc., and the Quincy Mine Hoist Association. Since these organizations are not now set up for the purpose of a partnership, a new entity composed of representatives from communities, businesses, and interested agencies might have to be created.

Regardless of how it was constituted, the partnership would be a community-based citizens' organization, with members representing all the communities in or near the Calumet and Quincy historic districts. The National Park Service would be the lead agency for the partnership and would establish a project office to coordinate management efforts. However, a separate unit of the national park system would not be created under this option.

The partnership could be established and begin operation while the project was being defined and evolving; and its structure could be changed if necessary to address future issues.

The partnership would be funded through private contributions and investments, technical assistance programs, partnership

fees, and grants. NPS funding would come from federal appropriations.

OPTIONAL PRESERVATION ASSISTANCE FUND

Under all alternatives an optional revolving fund for preservation assistance could be established. Currently, numerous structures in both historic districts are in various stages of disrepair or have been subjected to treatments that have damaged the historic fabric or the features that originally made the structures significant. The purpose of this fund would be twofold: (1) to provide leadership and direction for the preservation of contributing historical resources within the potential park boundaries, and (2) to educate and provide technical assistance to property owners concerning appropriate preservation treatments.

As previously mentioned, for each alternative between 300 and 500 historic structures (most of which are privately owned) would be included in the park boundaries. Most of these structures are in need of exterior preservation work to retain the historical setting for the park and to provide interpretive resources. No studies have yet been made to quantify the needs of these structures. An estimated \$15 million is the amount needed to provide sufficient preservation assistance to ensure the protection of the integrity of the historic districts without direct NPS intervention in the form of ownership or protective easements. This figure is included here as a recommended minimum so that cost estimates could be assessed; it could be revised as a result of future studies.

If funding was available as part of the overall park planning process, a report quantifying actual building needs could be prepared before a final amount for the

preservation fund was determined. Also such a fund could be implemented in an incremental manner, such as \$1 million per year for 15 years. This would provide time to evaluate the effectiveness of the fund and to allow for any modification.

If a national historical park was created by legislation, the fund could be established so that it would be administered by the park with the assistance of an advisory board. The board would be composed of appointees from state, county, and local governments, as well as the general public. The board would assist the National Park Service in setting priorities for allocating preservation assistance funds. Also the board would help develop criteria for those wishing to apply for assistance. Individual property owners would submit applications for preservation projects that would be evaluated by the advisory board. After considering the board's recommendations, the Park Service would make all final decisions on which preservation projects would be funded.

The funding mechanism could range from outright grants to low-interest loans for preservation. One benefit of a revolving fund using low-interest loans would be that as monies were paid back, they could be reinvested in additional projects. Outright grants would be used only in special cases to stimulate preservation

activity and to amplify the effect of the grant, and a matching contribution in either services or funds could be required of the recipient.

If the establishing legislation for a park did not include any provision for a preservation assistance fund, then state or county governments could take the lead in implementing such a program, which would then be administered without oversight from the National Park Service. It is likely that neither the state nor county government could match federal funding levels. This option could be accomplished if a portion of the preservation assistance fund came either equally or proportionally from federal, state, county, and local sources. The drawback to this option is that the leadership role of a single entity could be potentially weakened.

Another means to establish a historic preservation program would be through local tax rebates to property owners undertaking preservation projects and meeting specific criteria. However, this option could result in a lower tax base for county and city governments, and a diminished ability to accomplish other programs. This option would probably not be as effective as a preservation assistance fund due to lower funding levels, and some historic structures could be irretrievably lost.

APPENDIXES
SELECTED BIBLIOGRAPHY
PLANNING TEAM



APPENDIX A: NEW AREA STUDIES AND CRITERIA

The following excerpt is from the NPS *Management Policies* (1988).

2 Park System Planning

The National Park Service will conduct planning activities to evaluate possible additions to the national park system; to identify how park resources will be preserved and how parks will be used and developed to provide for public enjoyment; to facilitate coordination with other agencies and interests; and to involve the public in decision making about park resources, activities, and facilities. NPS plans will represent the Park Service's commitment to the public and to Congress of how parks will be managed.

NEW AREA STUDIES AND CRITERIA

The National Park Service identifies nationally significant natural, cultural, and recreational resources and assists in their preservation both inside and outside the national park system. The areas managed by the National Park Service are only one part of a national inventory of special and protected areas managed by innumerable federal, state, and local agencies and the private sector. Consequently, addition to the national park system is only one of many alternatives for ensuring the preservation of significant national resources for public enjoyment and benefit. A great variety of specially designated areas, including natural landmarks, historic landmarks, wild and scenic rivers, trails, wilderness areas, areas of critical environmental concern, biosphere reserves, and recreation areas, managed by the U.S. Forest Service, Fish and Wildlife Service, Bureau of Land Management, other federal, state, county, and local agencies, native American authorities, and the private sector, complete the broader national inventory.

As directed by Congress (16 USC 1a-5), the National Park Service will study and monitor areas to determine if they are nationally significant, and if so, whether they have potential for inclusion in the national park system. Planning for the future of the national park system is guided by a framework of themes representing all the aspects of America's natural and cultural heritage. Additions to the system recognize new understanding of natural resources, national recreational trends, and the continuing progression of history. New area studies may be initiated within the Service or may be conducted in response to requests from Congress, other federal, state, or local agencies, or the private sector. The Service will review all proposals and provide advice about planning, studies, or other appropriate actions. Where formal new area studies are appropriate, the Service will establish priorities and conduct studies as funds are available. Studies will include consultation with interested landowners, state and local governments, native American tribes and groups, and other federal agencies.

To be eligible for favorable consideration as a unit of the national park system, an area must (1) possess nationally significant natural, cultural, or recreational resources, (2) be a suitable and feasible addition to the system, and (3) require direct NPS management instead of alternative protection by other agencies or the private sector. These criteria are designed to ensure that the national park system includes only outstanding examples of the nation's natural, cultural, and

recreational resources. They also recognize that inclusion in the national park system is not the only option for preserving the nation's outstanding resources.

(See Public Participation in Planning 2:6, Special Designations 4:4, Resource Identification, Evaluation, and Registration 5:1)

Criteria for National Significance

A natural, cultural, or recreational resource will be considered nationally significant if it meets all of the following criteria:

It is an outstanding example of a particular type of resource.

It possesses exceptional value or quality in illustrating or interpreting the natural or cultural themes of our nation's heritage.

It offers superlative opportunities for recreation, public use, and enjoyment or for scientific study.

It retains a high degree of integrity as a true, accurate, and relatively unspoiled example of a resource.

Examples of natural resources that may be nationally significant include

an outstanding site that illustrates the characteristics of a landform or biotic area that is still widespread

a rare remnant natural landscape or biotic area of a type that was once widespread but is now vanishing due to human settlement and development

a landform or biotic area that has always been extremely uncommon in the region or nation

a site possessing exceptional diversity of ecological components (species, communities, habitats) or geologic features (landforms, observable manifestations of geologic processes)

a site containing biotic species or communities whose natural distribution at that location makes them unusual (a relatively large population at the limit of its range, or an isolated population)

a site harboring a concentrated population of a rare plant or animal species, particularly one officially recognized as threatened or endangered

a critical refuge necessary for the continued survival of a species

a site containing rare or unusually abundant fossil deposits

an area with outstanding scenic qualities, such as dramatic topographic features, unusual contrasts in landforms or vegetation, spectacular vistas, or other special landscape features

a site that is an invaluable ecological or geological benchmark due to an extensive and long-term record of research and scientific discovery

Nationally significant cultural resources include districts, sites, buildings, structures, or objects that possess exceptional value or quality in illustrating or interpreting our heritage and that possess a

high degree of integrity of location, design, setting, materials, workmanship, feeling, and association. Examples of cultural resources that may be nationally significant include those that

are associated with events that have made a significant contribution to and are identified with, or that outstandingly represent, the broad national patterns of United States history and from which an understanding and appreciation of those patterns may be gained

are associated importantly with the lives of persons nationally significant in the history of the United States

represent some great idea or ideal of the American people

embody the distinguishing characteristics of an architectural type specimen, exceptionally valuable for study of a period, style, or method of construction; or represent a significant, distinctive, and exceptional entity whose components may lack individual distinction

are composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition but collectively composing an entity of exceptional historical or artistic significance; or outstandingly commemorate or illustrate a way of life or culture

have yielded or may be likely to yield information of major scientific importance by revealing new cultures or by shedding light upon periods of occupation over large areas of the United States

Ordinarily, cemeteries, birthplaces, graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that have achieved significance within the past 50 years are not considered appropriate for addition to the national park system unless they have transcendent importance, unless they possess inherent architectural or artistic significance, or unless no other site associated with that theme remains.

Examples of recreation resources that may be nationally significant include

a natural or cultural feature providing a special setting for a variety of recreational activities different from those available at the local or regional level

a spacious area located near a major population center with the potential to provide exceptional recreational opportunities and to serve visitors from around the nation rather than solely from the immediate vicinity

an area that protects a unique recreation resource that is scarce and disappearing in a multi-state region, such as an outstanding recreational river, a unique maritime environment or coastline, or a unique scenic area

a unique combination of natural, cultural, and recreational resources that collectively offer outstanding opportunities for public use and enjoyment even though each feature might not individually be considered nationally significant

Suitability and Feasibility

An area will be considered suitable for addition to the national park system if it represents a natural/cultural theme or type of recreational resource that is not already adequately represented in

the national park system, unless such an area is comparably protected and presented for public enjoyment by another land-managing entity. Adequacy of representation will be determined on a case-by-case basis by comparing the proposed addition to other units in the national park system, considering differences or similarities in the character, quality, quantity, or combination of resources and opportunities for public enjoyment.

To be feasible as a new unit of the national park system an area must be of sufficient size and appropriate configuration, considering natural systems and/or historic settings, to ensure long-term protection of resources and to accommodate public use, and it must have potential for efficient administration at a reasonable cost. Important feasibility factors include landownership, acquisition costs, access, threats to the resource, and staff or development requirements.

(See Hazardous Materials and Toxic Waste 9:6)

Management Alternatives

Studies of potential new park units will evaluate an appropriate range of management alternatives, which may include

- continued management by states, local governments, native American authorities, the private sector, or other federal agencies

- technical or financial assistance to others through established NPS programs or special projects

- management by others as a designated national natural landmark, national historic landmark, national wild and scenic river, national trail, biosphere reserve, state or local park, or other specially designated and protected area

- cooperative management involving joint efforts by the National Park Service and other entities

New additions to the national park system will not usually be recommended if other arrangements can provide adequate protection for the resource and opportunities for public enjoyment.

Authorization

Studies by the National Park Service provide information for consideration by Congress in deciding whether a new unit should be authorized or whether some other form of protection and management is most appropriate. NPS studies may include suggestions about what uses should be permitted, prohibited, or allowed subject to certain conditions in a potential new unit. Specific direction on these issues is often provided in the text of the act, the legislative history, or the designation when Congress establishes a new unit.

PARK PLANNING PROCESS AND PRODUCTS

Planning will be conducted as a dynamic, continuous process for making choices about how to accomplish the National Park Service's preservation and enjoyment mandates. This process will include the gathering and analysis of data, an assessment of existing conditions and future trends, the identification of issues that need to be addressed, an evaluation of alternative actions, and the selection of a preferred alternative. Formal planning projects will generally result in the preparation

APPENDIX B: WETLANDS

Calumet Historic District – Five types of wetlands occur on seven sites.

P FO/SS Y	(3)	Palustrine Forested/Scrub-Shrub Saturated/Semipermanent/Seasonal
P SS/EM Y	(1)	Palustrine Scrub-Shrub/Emergent Saturated/Semipermanent/Season
POWN	(1)	Palustrine Open Water Regular
PSSY	(1)	Palustrine Scrub-Shrub Saturated/Semipermanent/Seasonal
POWH	(1)	Palustrine Open Water Permanent

Quincy Mining Company Historic District – Four types of wetlands occur on 11 sites.

P SS/EM B	(1)	Palustrine Scrub-Shrub/Emergent Saturated
PSSIB	(5)	Palustrine Scrub-Shrub Hypersaline Saturated
POWH	(3)	Palustrine Open Water Permanent
POWU	(2)	Palustrine Open Water Unknown

Definition of Terms

Palustrine – The palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and wetlands in tidal areas where salinity due to ocean-derived salts is below 0.5 ‰. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) no active wave-formed or bedrock shoreline features; (3) water depth in the deepest part of the basin less than 2 m at low water; and (4) salinity due to ocean-derived salts less than 0.5 ‰.

Emergent – Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants. All water regimes are included except subtidal and irregularly exposed areas.

Scrub-Shrub – The scrub-shrub wetland includes areas dominated by woody vegetation less than 6 m (20 feet) tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. All water regimes except subtidal are included.

Forested – The forested wetland is characterized by woody vegetation that is 6 m tall or taller. All water regimes are included except subtidal.

Saturated – The substrate is saturated to the surface for extended periods during the growing season, but surface water is seldom present.

**APPENDIX C: THREATENED AND ENDANGERED SPECIES
OF KEWEENAW, HOUGHTON, AND ONTONAGON COUNTIES**

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>HABITAT</u>	<u>COUNTY</u>
Federal Endangered Species			
Gray wolf	<i>Canis lupus</i>	Northern forested areas	Isle Royale portion of Keweenaw, Ontonagon, Houghton
Peregrine falcon	<i>Falco peregrinus</i>	Historic breeding area, also in 1988 and 1989; potential 1990 release sites	Keweenaw, Ontonagon
Federal Threatened Species			
Bald eagle	<i>Haliaeetus leucocephalus</i>	Breeding area	Houghton Keweenaw Ontonagon
Federal Candidate (2) Species			
Lynx	<i>Felis lynx</i>		Keweenaw
Lake sturgeon	<i>Acipenser fulvescens</i>		Houghton
Shortjaw cisco	<i>Coregonus zenithicus</i>		Keweenaw
Auricled twayblade	<i>Listeria auriculata</i>		Keweenaw
Bog bluegrass	<i>Poa paludigena</i>		Keweenaw

State Endangered Species

Keweenaw County – Gray wolf, lynx, Keweenaw rock rose, small round-leaved orchid

State Threatened Species

Houghton County – Lake sturgeon, common loon, bald eagle, osprey. Wild chives, northern reedgrass, Farwell's water-milfoil, Rayless Mountain ragwort.

Keweenaw County – Shortjaw cisco, common loon, bald eagle. Wild chives, rose pussytoes, big-leaf sandwort, heart-leaved arnica, great northern aster, slough grass, low northern rock cress, northern reedgrass, narrow-leaved reedgrass, calypso or fairy-slipper, sedge, Ross's sedge, bulrush sedge, pale Indian paintbrush, wild lilac, small blue-eyed Mary, American rock-brake, rock whitlow grass, smooth whitlow grass, twisted whitlow grass, male fern, black crowberry, American eyebright, narrow-leaved gentian, moor rush, blue lettuce, black twinberry, small-flowered wood-rush, northern blue, Farwell's water-milfoil, pygmy water lily, devil's club, osprey, marsh grass-of-Parnassus, purple cliff-rake, Franklin's phacelia, alpine bluegrass, Canby's bluegrass, bog bluegrass, alpine bistort, prairie cinquefoil, pine drops, Macoun's buttercup, pearlwort, tea-leaved willow, encrusted saxifrage, prickly saxifrage, Rayless Mountain ragwort, awlwort, false asphodel, dwarf bilberry, alpine blueberry, northern marsh violet, northern woodsia, blunt-lobed woodsia.

Ontonagon County – Common loon, bald eagle. Calypso or fairy slipper, small blue-eyed Mary, large toothwort, fairy bells, male fern, veiny meadow rue

APPENDIX D: HAZARDOUS SITES IDENTIFIED BY THE STATE

<u>LOCATION</u>	<u>SOURCE OF CONTAMINATION</u>	<u>POINT OF RELEASE</u>	<u>POLLUTANT</u>	<u>RESOURCES AFFECTED</u>
<u>Houghton County</u>				
Portage Township, Chassell	Landfill	Landfill	Domestic, commercial	Groundwater
Ripley, M-26 Petroleum Contaminants, Franklin	Petroleum storage	Pit	Petroleum	Soil
Former Elm St. Gas Station, Calumet	Gas station	Underground tank	Gasoline	Air
Houghton County Road Commission, Ripley	Salt storage	Pile	Salt	Surface water
<u>Keweenaw County</u>				
Calumet Air Force Station, Eagle River	Unknown	Unknown	PCE, TCE TCA, DCE	Groundwater, residential well, soil
Keweenaw County Road Commission	Roads	Unknown	Salt	
<u>Ontonagon County</u>				
Rockland Township, Rockland	Landfill	Landfill	Domestic, commercial	Surface water
Ontonagon Mobil Station, Ontonagon	Gas station	Underground tank	Gasoline	Soil
Greenland Township, Greenland	Landfill	Landfill	Domestic, commercial	Surface water
Ontonagon Village, Ontonagon	Landfill	Landfill	Domestic, commercial	Surface water
Bergland Township, Bergland	Landfill	Landfill	Domestic, commercial	
Interior Township, Interior	Landfill	Landfill	Domestic, commercial	
Carp Lake Township, Carp Lake	Landfill	Landfill	Domestic, commercial	Surface water

APPENDIX E: UPPER PENINSULA RECREATIONAL OPPORTUNITIES

NATIONAL AND STATE RECREATION AREAS

National forests, state parks, campgrounds, natural areas, fishing areas, and recreational harbors provide abundant opportunity for recreation on the Keweenaw Peninsula. Following is a list of recreational activities and associated sites throughout the peninsula. The Historic, Natural, and Recreational Features map (page 29) illustrates the locations of these highlighted areas.

Ottawa National Forest, Houghton and Ontonagon Counties. Camping is offered at the Sparrow Rapids, Lower Dam, Courtney Lake, Tanlund Lake, Bond Falls, Robbins Pond, Paulding Pond, and Deadmans Lake campgrounds.

Fort Wilkins State Park, Keweenaw County. This state park provides living history interpretation, boat tours, 165 campsites, picnic areas, hiking, fishing, and cross-country skiing. A lighthouse, boat launch, park store, and bookstore are also on site.

McLain State Park, Houghton County. A picnic area, 90 campsites, a trail for hiking and cross-country skiing, bathhouse and shelter, beaches, swimming, fishing, and interpretation are available.

Porcupine Mountains State Park, Ontonagon County. Recreation facilities include two developed and seven tent campgrounds (95 campsites total); 15 hiking trails (85 miles total); 13 cabins available for rent and accessible only on foot; one double chairlift, three T-bars, and two rope tows to accommodate alpine skiing; 25 miles of cross-country skiing trails; seven picnic areas; one boat ramp; ten waterfalls; fishing and hunting; and Summit Peak and Overlook at Lake of the Clouds observation points.

Twin Lakes State Park, Ontonagon County. This park offers 62 campsites, a picnic area, boat ramp, beach house, nature trail, state forest snowmobile trail, swimming, fishing, and cross-country skiing.

Campgrounds

Keweenaw County

- Fanny Hooe Resort – 64 campsites
- Minnetonka Resort – 6 campsites

Houghton County

- Lake Linden Village Recreation Area – 20 campsites
- George Gipp Multipurpose Recreational Area, Laurium – 40 campsites
- Hancock Recreational Boating and Campground Area – 46 campsites
- North Canal Township Park
- Agate Beach
- Emily Lake
- Bob Lake

Ontonagon County

Agate Beach Park in Toivola – tent camping
Ontonagon Township
White Pine
Lost Creek
Union River

Parks

Keweenaw County

Gay Park, Burnette Park, Haven Falls Park, Riverside Park, Esry Park, Mud Lake State Roadside Park, Hebard State Roadside Park, and W.C. Veale Memorial Park.

Houghton County

Lake Linden, Traverse Bay, Portage Canal, Dollar Bay, Chassell, Lake Perrault Kenton, Boston Pond, Airport Memorial, Calumet Township, Stanton Township, Verna Mize.

Ontonagon County

Green, Greenland, Bruce Crossing, Steusser Lake, Union Bay, Carp Lake Mine, Bergland Township, Ontonagon County, Military Bridge, Cedar Creek, and Agate Falls

State-Operated Harbors

Keweenaw County

Copper Harbor – Transient accommodations, gas, water, electrical hookups, restrooms, showers, pump-out, launch ramp, and radio communications
Lac La Belle – Transient accommodations, gas, and launch ramp
Eagle Harbor – Transient accommodations, gas, water, electrical hookups, restrooms, showers, pumpout, and launch ramp

Houghton County

Houghton/Hancock – Transient accommodations, gas and diesel fuel, water, electrical hookups, restrooms, showers, pumpout, launch ramp, a courtesy car, and radio communications
Houghton – Day-use only
Grand Traverse Bay – Transient accommodations, launch ramp, and other limited facilities
Portage River

Ontonagon County

Ontonagon – Transient accommodations, gas, telephone, water, electrical hookups, restrooms, showers, haul-out facility, pumpout, launch ramp, and radio communications

Fishing Areas and Access

Keweenaw County

Stocked Areas – Copper Harbor, Lake Medora (walleye), Traverse River (steelhead), Gratiot Lake, Lac La Belle (walleye), Lake Fanny Hooe (rainbow, walleye), Tobacco River (steelhead), Montreal River (brown trout)
Not Stocked – Lake Bailey, Eagle Harbor, Eliza Lake, Garden Creek, Thayers Lake, Bete Grise Bay

APPENDIXES

Houghton County

Stocked Areas – Portage Canal/River (salmon), Torch Lake (walleye, bass), Rice Lake (walleye)

Not Stocked – Boston Pond, Traverse Bay, Sunshine Beach, Portage Lake, Graveraet River, Elm River, Pike River, Otter Lake, Clear Lake, Sandy Lake, Pike Lake, Bart Creek, Bear Creek, Otter Creek, Sturgeon River, Dew Creek, Silver River, Prickett Dam Backwater Lake, Lake On Three

Ontonagon County

Santa Monica Beach, Firesteel River, Ontonagon River (South Branch, Middle Branch), Sudden Lake, Baltimore River, Ewen, Bond Falls Basin, County Line Lake, Silver City, Berglund Bay

Cross-country Skiing

Open access to areas suitable for cross-country skiing is provided on federal and state lands. In addition, the following sites have been developed specifically for cross-country skiing:

Keweenaw County – Fort Wilkins Ski Area and Copper Harbor Ski Area

Houghton County – Swedetown in Calumet, Michigan Technological University in Houghton, McLain State Park, Chassell, Maasto Hiihto in Hancock, and Twin Lakes

Snowmobile Trails

Snowmobiling is extremely popular on the Keweenaw Peninsula due to deep snow cover lasting from approximately November to April every season. Trails designed specifically for snowmobile use cross the entire peninsula. Beginning in Keweenaw County, trails stretch from Fort Wilkins to Copper Harbor to Eagle River to Mohawk to Laurium in Houghton County. From Laurium, trails extend into Calumet, Hancock, or Lake Linden and continue from Lake Linden into Hancock or Gay. Also in Houghton County, on the southern side of Portage Lake, snowmobile trails reach from the city of Houghton to South Range and continue to Chassell, Freda, or Toivola in Ontonagon County. Trails in Ontonagon County then stretch from Toivola to Donken to Twin Lakes to the city of Ontonagon.

Canoeing

Houghton County – Sturgeon River

Ontonagon County – Ontonagon River

Scenic Drives

Four scenic drives in Keweenaw County – Mt. Brockway, Cliff, Shoreline, Sand Dunes – offer outstanding views of the natural features of the area.

Natural Landmarks and Waterfalls

Keweenaw County

Manitou Island, Mount Brockway, Mount Lookout, Great Sand Dunes Bay, Bear Pits on M-41 near Medora Lake, Estivant Pines Nature Sanctuary, Keweenaw Shore Nature Sanctuary, Lac La Belle Falls, Copper Falls, Eagle River Falls, Haven Falls, Jacobs Falls, Lower Falls of Gratiot River, Upper Falls of Gratiot River, Upper Manganese Falls, and Lower Manganese Falls

Houghton County

Lake View Site, Arboreal Tunnel, Silver Mountain Tower Viewpoint, Sturgeon River Gorge Wilderness Area, nature trail in the Mishwabic State Forest at the southern end of Portage Lake, Douglass Houghton Falls, Hungarian Falls, Redridge Dam, Ripley Falls, and Wyandotte Falls

Ontonagon County

South Bluff, 0 Kuh De Kun Falls, Agate Falls, Bond Falls, Porcupine Mountain observation tower and trails, and the Trap Hills peregrine release site

Other Attractions

Keweenaw County

Astor House Museum in Copper Harbor; Delaware Mine Tour – open May, September, and October from 10 a.m. to 5 p.m. and June through August from 10 a.m. to 6 p.m.; Rathbone Schoolhouse in Eagle Harbor
Lighthouses: Mendota at Bete Grise Bay; Manitou Island; Gull Rock; Copper Harbor "1866"; Eagle Harbor (open mid-June to mid-September); Eagle River; Sand Hills at Five-mile Point

Houghton County

Houghton County Historical Museum at Lake Linden; Jukuris Sauna in Houghton; Arcadian Mine Tour near Ripley; Mont Ripley Downhill Ski Area; Calumet Theater and Coppertown Museum in Calumet; home tours in Laurium; Quincy steam hoist and shafthouse; Seamens Mineralogical Museum at Michigan Technological University in Houghton
Lighthouses: Jacobsville; Portage Lake lower entry at White City

In addition to the outdoor recreation attractions listed above, accessible lands of the peninsula lend themselves to birdwatching, sea kayaking, water skiing, scuba diving, biking, photography, berry picking, drift wood collecting, wildflower picking, rock hounding, and fall color tours. The location of the peninsula affords excellent opportunities for viewing the northern lights. Local communities offer golf, miniature golf, tennis, racquetball, bowling, and swimming. Snowmobile rentals, horseback riding, farm and ranch tours (produce picking), boat cruises, guided hiking tours, horse drawn tours, and air tours are also available at various locations throughout the peninsula.

APPENDIX F: DEVELOPMENT COST ESTIMATES

The following basis was used for figuring alternative development cost estimates.

NET CONSTRUCTION COSTS (with contractor overhead and profit)

Stabilization:	\$55/sf
Exterior preservation (includes some structural work):	\$75/sf
Preserve structures and machinery:	\$105/sf
Rehabilitation:	\$175/sf
Restoration:	\$200/sf
New visitor center or rehabilitation of existing building as visitor center:	\$250/sf

GROSS CONSTRUCTION COST

Construction costs shown for each alternative include an additional 15 percent for contingencies plus 31 percent for construction supervision and administrative services. The alternative construction costs do not include planning and design costs. If the National Park Service is responsible for advance and project planning costs, an additional 25 percent of the net construction cost would be added to these figures.

PROPERTY ACQUISITION

Calumet

Industrial building	\$7.20/sf
Commercial land	\$22.20/sf
Industrial land	\$16,000/ac

Houghton

Commercial/industrial building	\$14.60/sf
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Hancock

Industrial building	\$11,000/ac
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None of the buildings at Quincy are used any longer for mining, and all have deteriorated. Acquisition was figured as the price of raw land only. The only exception to this was at the Homestake Mine and Osceola Mine, where machinery was included in the acquisition price.

TABLE F-1: DEVELOPMENT COSTS, ALTERNATIVE 1

Houghton	
Acquire building/property (15,000 sf)	220,000
Rehabilitate or build new building (15,000 sf)	5,649,000
Demolish old headquarters building (5,000 sf)	38,000
Site work/parking (100 cars additional to existing)	301,000
	<u>6,208,000</u>
Quincy Smelting Works	
Acquire property (22 ac)	242,000
Stabilize buildings (67,300 sf)	5,575,000
Site work (parking, walks, paths)	1,281,000
	<u>7,098,000</u>
Quincy Mine Location	
Acquire shaft/hoist house and south ruins (62 ac)	682,000
Acquire right-of-way to smelter (3 ac)	33,000
Preserve shaft/hoist buildings (37,100 sf)	4,191,000
Preserve ruins (south of no. 2 shaft)	678,000
Preserve site artifacts	452,000
Site work (parking, paths, path connection to smelter)	1,345,000
	<u>7,381,000</u>
Calumet	
Acquire property for visitor center (building 5,000 sf, land 4 ac)	100,000
Construct visitor center (5,000 sf)	1,883,000
Visitor center site work (parking, walks, paths)	188,000
	<u>2,171,000</u>
Total – Alternative 1	22,858,000

TABLE F-2: DEVELOPMENT COSTS, ALTERNATIVE 2

Quincy Smelting Works	
Acquire property (22 ac)	242,000
Rehabilitate structures for adaptive use (67,300 sf)	17,740,000
Site work (includes new dock for <i>Ranger III</i>)	2,636,000
	<u>20,618,000</u>
Quincy Mine Location	
Acquire property (shaft/hoist house and south ruins, 62 ac)	682,000
Acquire transit/trail right-of-way (6 ac)	66,000
Preserve shaft/hoist buildings (37,100 sf)	4,191,000
Preserve ruins (south of no. 2 shaft)	678,000
Preserve site artifacts	452,000
Link to smelter (trail and mechanical conveyance, 1.5 mi)	2,757,000
Site work (parking, walks, paths)	518,000
	<u>9,344,000</u>
Calumet	
Acquire property (building 5,000 sf, land 4 ac)	100,000
Construct visitor center (5,000 sf)	1,883,000
Visitor center site work (parking, walks, paths)	188,000
	<u>2,171,000</u>
Total – Alternative 2	32,133,000

TABLE F-3: DEVELOPMENT COSTS, ALTERNATIVE 3

Quincy Smelting Works	
Acquire property (22 ac)	242,000
Stabilize buildings (67,300 sf)	5,575,000
Site work (parking, walks, paths)	<u>1,281,000</u>
	7,098,000
Quincy Mine	
Acquire property (shaft/hoist/south ruins, 62 ac)	682,000
Acquire property (machine/blacksmith shop ruins, 37 ac)	407,000
Acquire property (Lower Pewabic housing area, 100 ac)	1,100,000
Acquire trail access to smelter (3 ac)	33,000
Preserve shaft/hoist buildings (37,100 sf)	4,191,000
Rehabilitate machine shop (9,000 sf)	2,373,000
Rehabilitate blacksmith shop as visitor center (13,300 sf)	4,636,000
Preserve ruins (south and north of no. 2 shaft)	1,128,000
Preserve site artifacts	452,000
Cap no. 6 shaft	60,000
Site work (parking, paths, path connection to smelter)	<u>1,345,000</u>
	16,407,000
Calumet	
Acquire property for visitor center (building 5,000 sf, land 4 ac)	100,000
Acquire town sites (6 @ 9,000 sf)	1,200,000
Construct visitor center (5,000 sf)	1,883,000
Visitor center site work (parking, walks, paths)	188,000
Rehabilitate town sites for adaptive use (6 @ 9,000 sf)	<u>14,236,000</u>
	17,607,000
Total - Alternative 3	41,112,000

TABLE F-4: DEVELOPMENT COSTS, ALTERNATIVE 4

Quincy Smelting Works	
Acquire property (22 ac)	242,000
Preserve structures and machinery (67,300 sf)	10,644,000
Site work (parking, walks, paths)	<u>1,281,000</u>
	12,167,000
Quincy Mine	
Acquire shaft/hoist/south ruins (62 ac)	682,000
Acquire machine/blacksmith shop/north ruins (37 ac)	407,000
Acquire Lower Pewabic housing area (100 ac)	1,100,000
Acquire right-of-way to smelter (3 ac)	33,000
Acquire Quincy/Homestake Mine (equipment and right-of-way, 11 ac)	195,000
Preserve shaft/hoist buildings (37,100 sf)	4,191,000
Rehabilitate machine shop (9,000 sf)	2,373,000
Rehabilitate blacksmith shop as visitor center (13,300)	4,071,000
Preserve no. 8 shaft buildings	616,000
Preserve ruins (north and south of no. 2 shaft)	1,128,000
Preserve site artifacts	452,000
Operate no. 2 shaft for mine tours	3,826,000
Cap no. 6 shaft	60,000
Site work (parking, walks, paths)	<u>4,347,000</u>
	23,481,000
Calumet	
Acquire property for visitor center (building 5,000 sf, land 4 ac)	100,000
Acquire town sites (6 @ 9,000 sf)	1,200,000
Construct visitor center (5,000 sf)	1,883,000
Visitor center site work (parking, walks, paths)	188,000
Restore town sites for interpretation (6 @ 9,000 sf)	<u>16,270,000</u>
	19,641,000
Total - Alternative 4	55,289,000

TABLE F-5: DEVELOPMENT COSTS, ALTERNATIVE 5

Quincy Mine	
Acquire shaft/hoist house and south ruins (62 ac)	682,000
Preserve shaft/hoist buildings (37,100)	4,191,000
Preserve ruins (south)	678,000
Preserve site artifacts	452,000
Sitework (parking, walks, paths)	518,000
	<u>6,521,000</u>
Calumet	
Acquire property for visitor center (building 10,000 sf, land 4 ac)	200,000
Acquire town sites (6 @ 9,000 sf)	1,200,000
Acquire Osceola Mine and equipment (18 ac)	388,000
Acquire trail access (from visitor center to Osceola)	24,000
Construct visitor center (10,000 sf)	3,766,000
Visitor center site work (parking, walks)	377,000
Restore town sites for interpretation (6 @ 9,000 sf)	16,270,000
Pave road/trail access to Osceola (1 mi)	386,000
Preserve Osceola Mine (10,600 sf) and machinery	1,677,000
	<u>24,288,000</u>
Total - Alternative 5	30,809,000

APPENDIX G: STAFFING AND OPERATING COSTS

TABLE G-1: STAFFING AND OPERATING COSTS, ALTERNATIVES 1, 2, AND 5

<u>POSITION</u>	<u>NUMBER OF POSITIONS</u>	<u>GRADE</u>	<u>SALARY (STEP 5)</u>	<u>PERCENTAGE FOR BENEFITS*</u>	<u>TOTAL COST</u>
Superintendent/ Assistant Superintendent	1	GS-12	40,601	13	45,879
Site Manager (Maintenance)	1	GS-11	33,875	13	38,278
Ranger/Interpretive Ranger/ Historian	1	GS-11	33,875	13	38,278
Ranger/Interpretive Ranger/ Historian	1	GS-9	28,001	13	31,641
Resource Management Specialist	1	GS-9	28,801	13	31,641
Maintenance Worker	1	WG-9	28,184	13	31,847
Personnel Specialist	1	GS-7	22,887	28	29,295
Interpretive/Museum Specialist	1	GS-7	22,887	28	29,295
Maintenance Worker	1	WG-7	26,249	13	29,661
Administrative Assistant	1	GS-5	18,481	28	23,655
Seasonal Rangers	2	GS-5	18,481	7.1	39,586
Maintenance Worker	1	WG-5	24,460	28	31,308
Clerk/Typist	1	GS-4	16,517	28	21,141
Maintenance Worker	<u>1</u>	WG-4	23,566	28	<u>30,164</u>
Subtotal					451,669
25% Operating Cost**					<u>112,917</u>
Total	15				\$ 564,586

* Percentage for benefits for CSR employees is 13%; for FERS employees, 28%; for temporary/seasonal employees, 7.1%.

** Operating costs range between 17% and 33%.

TABLE G-2: STAFFING AND OPERATING COSTS, ALTERNATIVE 3

<u>POSITION</u>	<u>NUMBER OF POSITIONS</u>	<u>GRADE</u>	<u>SALARY (STEP 5)</u>	<u>PERCENTAGE FOR BENEFITS*</u>	<u>TOTAL COST</u>
Superintendent/ Assistant Superintendent	1	GS-12	40,601	13	45,879
Site Manager (Maintenance)	1	GS-11	33,875	13	38,278
Ranger/Interpretive Ranger/ Historian	1	GS-11	33,875	13	38,278
Ranger/Interpretive Ranger/ Historians	2	GS-9	28,001	13	63,282
Resource Management Specialist	1	GS-9	28,801	13	31,641
Maintenance Worker	1	WG-9	28,184	13	31,847
Personnel Specialist	1	GS-7	22,887	28	29,295
Interpretive/Museum Specialist	1	GS-7	22,887	28	29,295
Maintenance Workers	3	WG-7	26,249	13	88,983
Administrative Assistant	1	GS-5	18,481	28	23,655
Seasonal Rangers	4	GS-5	18,481	7.1	79,172
Maintenance Worker	1	WG-5	24,460	28	31,308
Clerk/Typist	1	GS-4	16,517	28	21,141
Maintenance Worker	<u>1</u>	WG-4	23,566	28	<u>30,164</u>
Subtotal					582,218
25% Operating Cost					<u>145,555</u>
Total	20				\$ 727,773

* Percentage for benefits for CSR employees is 13%; for FERS employees, 28%; for temporary/seasonal employees, 7.1%.

** Operating costs range between 17% and 33%.

APPENDIXES

TABLE G-3: STAFFING AND OPERATING COSTS, ALTERNATIVE 4

<u>POSITION</u>	<u>NUMBER OF POSITIONS</u>	<u>GRADE</u>	<u>SALARY (STEP 5)</u>	<u>PERCENTAGE FOR BENEFITS*</u>	<u>TOTAL COST</u>
Superintendent/ Assistant Superintendent	1	GS-12	40,601	13	45,879
Site Manager (Maintenance)	1	GS-11	33,875	13	38,278
Ranger/Interpretive Ranger/ Historian	1	GS-11	33,875	13	38,278
Ranger/Interpretive Ranger/ Historian	1	GS-9	28,001	13	31,641
Resource Management Specialist	1	GS-9	28,801	13	31,641
Maintenance Worker	1	WG-9	28,184	13	31,847
Personnel Specialist	1	GS-7	22,887	28	29,295
Interpretive/Museum Specialists	3	GS-7	22,887	28	87,885
Maintenance Workers	2	WG-7	26,249	13	59,322
Administrative Assistant	1	GS-5	18,481	28	23,655
Seasonal Rangers	4	GS-5	18,481	7.1	79,172
Maintenance Workers	2	WG-5	24,460	28	62,616
Clerk/Typist	1	GS-4	16,517	28	21,141
Maintenance Workers	<u>2</u>	WG-4	23,566	28	<u>60,328</u>
Subtotal					640,978
25% Operating Cost**					<u>160,245</u>
Total	22				\$ 801,223

* Percentage for benefits for CSR employees is 13%; for FERS employees, 28%; for temporary/seasonal employees, 7.1%.

** Operating costs range between 17% and 33%.

SELECTED BIBLIOGRAPHY

BARTON ASCHMAN ASSOCIATES, INC., AND GEORGE BANZHAF & COMPANY

- 1971 "Development Opportunities in Keweenaw, Houghton and Ontonagon Counties, Michigan."
Prepared for the University Oil Products Company. N.p.

BENEDICT, HARRY C.

- 1952 *Red Metal: The Calumet and Hecla Story*. Ann Arbor: University of Michigan Press.

CALUMET TOWNSHIP BICENTENNIAL COMMISSION

- 1976 *1776-1976 Calumet Township Bicentennial Celebration: A 1976 Synopsis*. Limited edition.
Calumet, MI.

CALUMET VILLAGE CENTENNIAL COMMITTEE

- 1975 *Village of Calumet Michigan 1875-1975*. Souvenir Centennial Book. Calumet, MI.

CALUMET, VILLAGE OF,

- n.d. "Historic District Regulations."

- n.d. "Draft Zoning Ordinance."

CLK FORESIGHT, INC.

- 1989 "Testimony and Supporting Documentation for 5.866: Calumet Copper Country National Park Act
of 1989." Submitted by CLK Foresight, Inc. N.p.

HOLLINGSWORTH, SANDRA

- 1982 *The Atlantic: Copper and Community South of Portage Lake*. Hancock: The Book Concern, Inc.

JENSEN, VERNON H.

- 1950 *Heritage of Conflict: Labor Relations in the Nonferrous Metals Industry Up to 1930*. Ithaca: Cornell
University Press.

JORALEMON, IRA B.

- 1973 *Copper: The Encompassing Story of Mankind's First Metal*. Berkeley: Howell-North Books.

JOHN ROGER JOHANSEN, ARCHITECT

- 1981 *Calumet Downtown Historic District Plan: Calumet, Michigan. Part 2: Municipal Responsibilities*.
Prepared under the direction of the Village of Calumet Downtown Development Authority.
Houghton, MI.

KEWEENAW PENINSULA

- 1989 *Michigan's Keweenaw Jobs 2000*. Sponsored by Keweenaw Peninsula Chamber of Commerce,
Michigan Bell, and the office of Governor James Blanchard. N.p.

LANKTON, LARRY D., AND CHARLES K. HYDE

- 1982 *Old Reliable: An Illustrated History of the Quincy Mining Company*. Hancock: The Quincy Mine
Hoist Association, Inc.

LESKINEN, CHRISTINE, AND LAURI LESKINEN

- 1980 *Copper Country History: 3000 B.C.-1980, with Old Photos*. Park Falls, WI: F.A. Weber & Sons,
Inc.

Selected Bibliography

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

n.d. *Building Michigan's Recreation Future: The 1985-90 Michigan Recreation Plan*. Lansing.

MICHIGAN TRAVEL COMMISSION

n.d. *Canoeing in Michigan*. Lansing.

MONETTE, CLARENCE J.

1983 *Painesdale, Michigan Old and New*. Part 23 in a local history series. Lake Linden: Welden H. Curtin.

1988 *Early Red Jacket and Calumet in Pictures*. Part 32 in a local history series. Lake Linden: Welden H. Curtin.

1989 *Freda, Michigan, End of the Road*. Part 35 in a local history series. Lake Linden: Welden H. Curtin.

1989 *The Copper Range Railroad*. Part 37 in a local history series. Lake Linden: Welden H. Curtin.

MURDOCK, ANGUS

1964 *Boom Copper: The Story of the First U.S. Mining Boom*. Republished by Roy W. Drier and Louis G. Koepel, Calumet.

MUSTONEN, ERIK

1973 "Historic Environment Preservation and Interpretation, With a Conceptual Application to the Neenaw Area of Michigan." Master's thesis, University of Michigan, Ann Arbor.

NATIONAL PARK SERVICE, U.S. DEPARTMENT OF THE INTERIOR

1974 "Calumet Historic District." National Register of Historic Places Inventory-Nomination Form. On file at the Midwest Regional Office, Omaha, NE.

1978 "Quincy Mining Company Historic District." National Register of Historic Places Inventory-Nomination Form. On file at the Midwest Regional Office, Omaha, NE.

1987 "Mining Technology and Historic Preservation, with Special Reference to the Black Hills," by Robert L. Spude. Alaska Regional Office, Anchorage.

1988 *Options for National Park Service Involvement in the Management of Historic Copper Mining Resources on Michigan's Keweenaw Peninsula*. Omaha: Midwest Regional Office.

1990 *Proceedings of the Historic Mining Conference*. San Francisco: Division of National Register Programs.

PRESERVATION URBAN DESIGN, INCORPORATED

1979 *Calumet Downtown Historic District Plan*. Study prepared in association with John Roger Johansen, Architect. Calumet, MI.

QUINCY MINE HOIST ASSOCIATION

n.d. *Quincy Mining Company Hancock, Michigan: Mine-Mill-Smelter-Community*. Calumet: The Copper Press.

STEELE, PAUL T.

1982 *Tamarack Town: Mines-People-Places*. Calumet: Copper Land Graphics.

THURNER, ARTHUR W.

1974 *Calumet Copper and People: History of a Michigan Mining Community 1864-1970*. Hancock: The Book Concern Printers.

1984 *Rebels on the Range: The Michigan Copper Miners' Strike of 1913-1914*. Hancock: Book Concern Printers.

TORCH LAKE BI-CENTENNIAL COMMITTEE

n.d. *Hubbell-Tamarack Mills Torch Lake Area: BICENTENNIAL 1876-1976*.

U.P. ENGINEERING AND ARCHITECTURAL ASSOCIATES, INC.

1988 "Development Concept Report for the Quincy Development Corporation." Prepared for Quincy Development Corporation. Houghton, MI.

WEED, WALTER H.

n.d. *The Mines Handbook: A Manual of the Mining Industry of the World*. International Edition. New York: Walter H. Weed.

WESTERN UPPER PENINSULA PLANNING AND DEVELOPMENT REGION COMMISSION

1990 "The Regional Heritage Reserve." Documents prepared for the National Park Service. Houghton, MI.

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