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

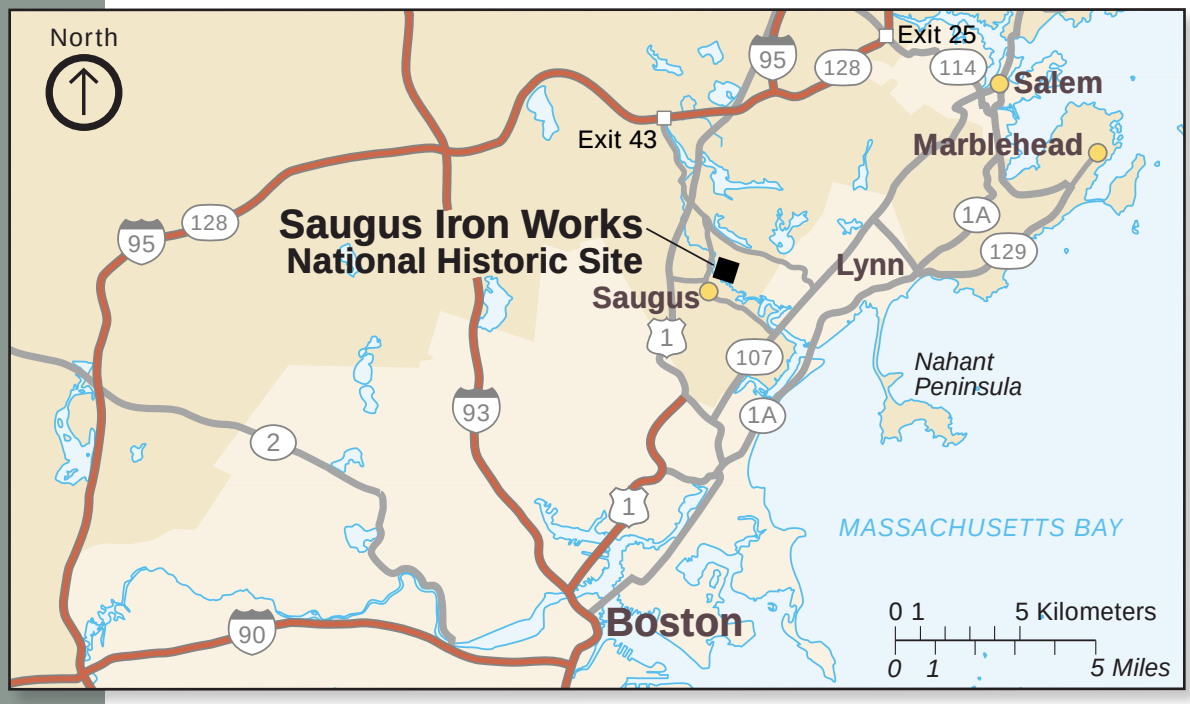
Foundation Document

Saugus Iron Works National Historic Site

Massachusetts

September 2019


Central Street
Restrooms
Museum
Visitor Center
Ironworks House
Entrance
Parking
Static Site Map
Charging Bridge
Accessible Walkway
Blast Furnace
Forge
Slag Pile
Shitting Mill
Shallop
Dock
Turning Basin
Blacksmith Shop
Saugus River
Nature Trail
North


North
Exit 25
Exit 43
95
128
114
Salem
Marblehead
1A
129
Lynn
Saugus Iron Works
National Historic Site
Saugus
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107
Nahant
Peninsula
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2
1A
1
MASSACHUSETTS BAY
90
Boston
0 1
5 Kilometers
0 1
5 Miles

Contents

Mission of the National Park Service

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The NPS core values are a framework in which the National Park Service accomplishes its mission. They express the manner in which, both individually and collectively, the National Park Service pursues its mission. The NPS core values are:

- **Shared stewardship:** We share a commitment to resource stewardship with the global preservation community.
- **Excellence:** We strive continually to learn and improve so that we may achieve the highest ideals of public service.
- **Integrity:** We deal honestly and fairly with the public and one another.
- **Tradition:** We are proud of it; we learn from it; we are not bound by it.
- **Respect:** We embrace each other's differences so that we may enrich the well-being of everyone.

The National Park Service is a bureau within the Department of the Interior. While numerous national park system units were created prior to 1916, it was not until August 25, 1916, that President Woodrow Wilson signed the National Park Service Organic Act formally establishing the National Park Service.

The national park system continues to grow and comprises more than 400 park units covering more than 84 million acres in every state, the District of Columbia, American Samoa, Guam, Puerto Rico, and the Virgin Islands. These units include, but are not limited to, national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails, and the White House. The variety and diversity of park units throughout the nation require a strong commitment to resource stewardship and management to ensure both the protection and enjoyment of these resources for future generations.

The arrowhead was authorized as the official National Park Service emblem by the Secretary of the Interior on July 20, 1951. The sequoia tree and bison represent vegetation and wildlife, the mountains and water represent scenic and recreational values, and the arrowhead represents historical and archeological values.

Introduction

Every unit of the national park system will have a foundational document to provide basic guidance for planning and management decisions—a foundation for planning and management. The core components of a foundation document include a brief description of the park as well as the park's purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes. The foundation document also includes special mandates and administrative commitments, an assessment of planning and data needs that identifies planning issues, planning products to be developed, and the associated studies and data required for park planning. Along with the core components, the assessment provides a focus for park planning activities and establishes a baseline from which planning documents are developed.

A primary benefit of developing a foundation document is the opportunity to integrate and coordinate all kinds and levels of planning from a single, shared understanding of what is most important about the park. The process of developing a foundation document begins with gathering and integrating information about the park. Next, this information is refined and focused to determine what the most important attributes of the park are. The process of preparing a foundation document aids park managers, staff, and the public in identifying and clearly stating in one document the essential information that is necessary for park management to consider when determining future planning efforts, outlining key planning issues, and protecting resources and values that are integral to park purpose and identity.

While not included in this document, a park atlas is also part of a foundation project. The atlas is a series of maps compiled from available geographic information system (GIS) data on natural and cultural resources, visitor use patterns, facilities, and other topics. It serves as a GIS-based support tool for planning and park operations. The atlas is published as a (hard copy) paper product and as geospatial data for use in a web mapping environment. The park atlas for Saugus Iron Works National Historic Site can be accessed online at: http://insideparkatlas.nps.gov/.

Part 1: Core Components

The core components of a foundation document include a brief description of the park, park purpose, significance statements, fundamental resources and values, other important resources and values, and interpretive themes. These components are core because they typically do not change over time. Core components are expected to be used in future planning and management efforts.

Brief Description of the Park

Saugus Iron Works is a reconstruction of Hammersmith, the first successful, sustained, and integrated iron works in British North America. The reconstruction is based on extensive archeological excavations undertaken in the late 1940s and early 1950s. It was probably the most extensive industrial plant built in North America in the 17th century. In 1646, Hammersmith was established by a group of English investors (including Governor John Winthrop's son) known as the Company of Undertakers of the Iron Works in New England. Hammersmith produced cast and wrought iron for sale in the colony, as well as nail rod in the slitting mill (a watermill for making iron rods), one of only about a dozen such factories in the world at that time. Hammersmith had economic problems and in 1653 the courts ordered it seized to satisfy its debts. The blast furnace was operated well into the 1660s, although some iron work continued at the site afterward. After Hammersmith no longer operated, the Saugus River hosted other watermills and prospered into one of New England's industrial zones. Much of Hammersmith's original 600-acre property, then known as the Iron Works Farm, was used for agriculture until historic preservationist Wallace Nutting restored the Iron Works House from 1915 to 1917. Nutting used the house as a "show house" (called Broadhearth) for Colonial Revival furniture and as a photography setting for colonial vignettes. The potential relocation of the Iron Works House to Dearborn, Michigan, as part of Henry Ford's historic building museum led to local preservation efforts and a greater recognition of the significance of the site at the national level. With financial backing of the American Iron and Steel Institute, a newly established First Iron Works Association hired Roland Robbins to conduct archeological explorations of the site between 1948 and 1953. Robbins' fieldwork led to a reconstruction of the blast furnace and forge, and estimated location of a slitting mill. The reconstruction was dedicated in September 1954 and operated as an independent historic site until donated to the National Park Service in July 1969.

Saugus Iron Works National Historic Site, which encompasses 12.58 acres (of Hammersmith's original 600 acres from the 17th century), evokes the character of a working, water-powered, iron-making plant from the early Massachusetts Bay Colony. Visitors tour three mill buildings where an elaborate system of waterwheels and sluiceways powers 17th-century engineered mechanical equipment, demonstrating the core operations of Hammersmith. The site includes the reconstructed blast furnace, forge, slitting mill, and warehouse, together with the original slag pile and several post-Hammersmith era structures (i.e., Iron Works House, museum, visitor contact station, blacksmith shop, maintenance buildings, and 1940s residences). Visitation in 2018 was 10,660.

In 1998, Saugus Iron Works was administratively "re-connected" with Salem Maritime National Historic Site after independent management from the mid-1970s. Saugus Iron Works has a number of partners including Essex National Heritage Area and Saugus River Watershed Council.

Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Saugus Iron Works National Historic Site was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. The park was established when the enabling legislation adopted by Congress was signed into law on April 5, 1968 (see appendix A for enabling legislation). The purpose statement lays the foundation for understanding what is most important about the park.

The purpose of Saugus Iron Works National Historic Site is to preserve and interpret the reconstructed Hammersmith site and resources associated with the first sustained, integrated ironworks in British Colonial America, which operated on the Saugus River from 1646 to approximately 1670.

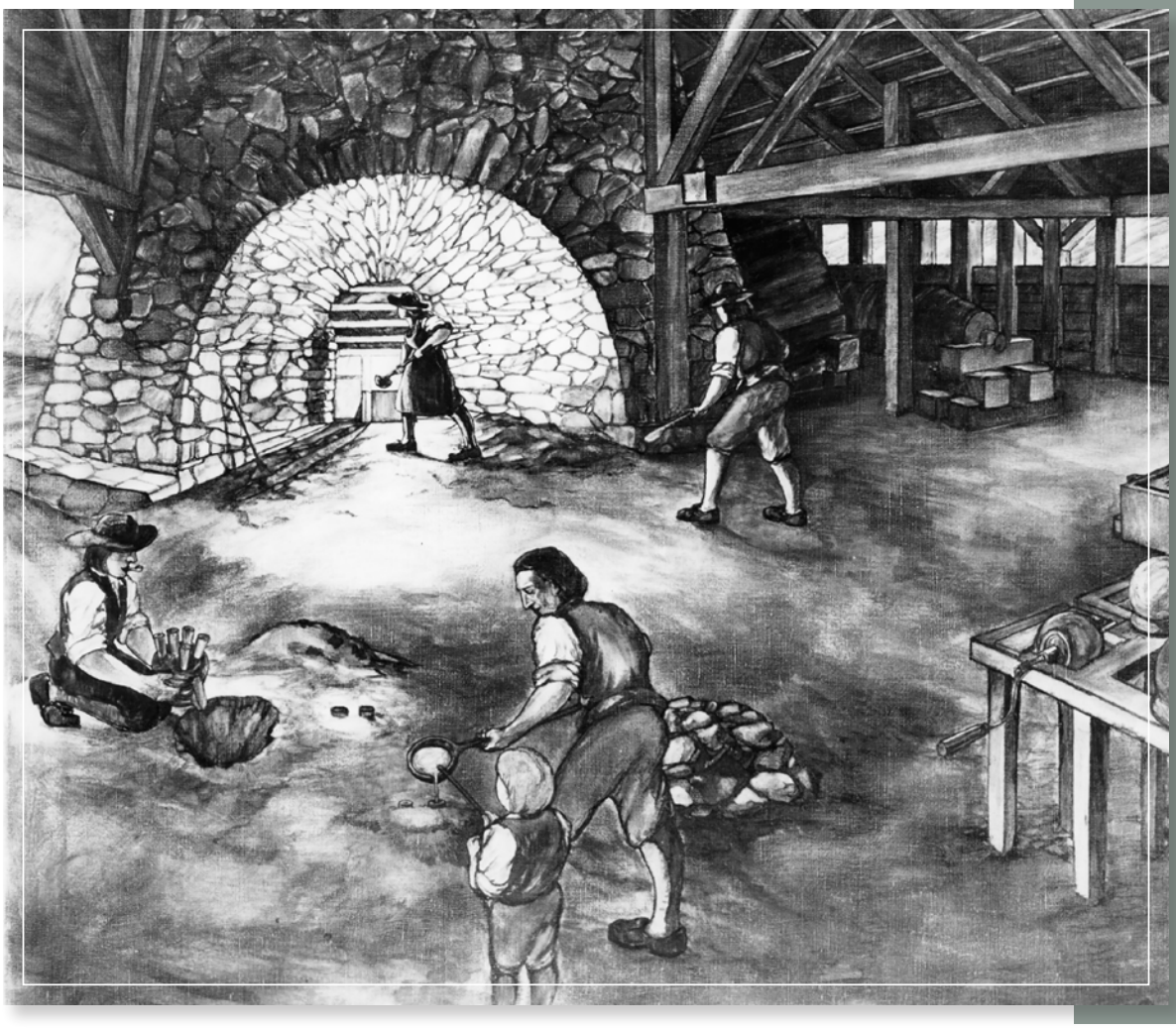
Park Significance

Significance statements express why a park's resources and values are important enough to merit designation as a unit of the national park system. These statements are linked to the purpose of Saugus Iron Works National Historic Site, and are supported by data, research, and consensus. Statements of significance describe the distinctive nature of the park and why an area is important within a global, national, regional, and systemwide context. They focus on the most important resources and values that will assist in park planning and management.

The following significance statements have been identified for Saugus Iron Works National Historic Site. (Please note that the sequence of the statements does not reflect the level of significance.)

1. The 1646 Saugus Iron Works provided crucial iron commodities to the young colony and served as a training ground for skilled ironworkers, who established ironworks ventures throughout the northeast, laying the foundation of the U.S. iron and steel industry. Financed by British investors, Hammersmith was an integral part of the British Atlantic economy and a critical step in the development of the emerging U.S. economy.

2. Saugus Iron Works National Historic Site is a prominent example of the Colonial Revival Movement, historic preservation, and historical archeology in the first half of the 20th century. Beginning with Wallace Nutting's preservation of the Iron Works House, and followed by the First Iron Works Association, the park memorializes the earliest successful integrated iron works in the country by reconstructing many of the buildings integral to its operation.



Fundamental Resources and Values

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. Fundamental resources and values are closely related to a park's legislative purpose and are more specific than significance statements.

Fundamental resources and values help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

The following fundamental resources and values have been identified for Saugus Iron Works National Historic Site:

- **Historic Buildings and Structures**
  - Iron Works House (original 17th-century structure with 20th-century modifications)
  - 20th-century Restorations, Rehabilitation, and Reconstructions
  - Iron Works House
  - Museum Building
  - Blast Furnace
  - Forge
  - Slitting Mill
  - Iron Warehouse and Pier
- **Archeological Resources**
  - 10,000 BCE to 1600
  - Hammersmith Site (17th century)
  - Slag Pile
  - Jenks Forge area
  - Colonial Agriculture (17th and 18th centuries)
- **Cultural Landscapes**
  - First Iron Works Open Air Museum Industrial Landscape
  - Nutting's Iron Works House Landscape
  - Saugus River Turning Basin
- **Museum Collections**
  - 1646 to approximately 1670
  - American Indian prehistory/pre-contact
  - Colonial Revival and 20th-century preservation movement
- **Immersive Sensory Experience – 17th-Century Iron Making**
  - Blacksmith Shop
  - Waterwheels, bellows, and hammers
  - Riverside walking path

Other Important Resources and Values

Saugus Iron Works National Historic Site contains other resources and values that are not fundamental to the purpose of the park and may be unrelated to its significance, but are important to consider in planning processes. These are referred to as "other important resources and values" (OIRV). These resources and values have been selected because they are important in the operation and management of the park and warrant special consideration in park planning.

The following other important resources and values have been identified for Saugus Iron Works National Historic Site:

- **Saugus Iron Works Nature Trail (national recreation trail)**
- **Natural Resources**
  - Saugus River watershed/ecosystem (water quality, riverbed, and marsh sediments)
  - Vegetation (upland, wetland, and aquatic)
  - Wildlife (avian, fish, aquatic benthic macro-invertebrates)
  - Geological Setting: Hammersmith was located at the fall line of the Saugus River to take advantage of the nexus of waterpower and efficient transportation necessary for its successful operation.

Related Resources

Related resources are not owned by the park. They may be part of the broader context or setting in which park resources exist; represent a thematic connection that would enhance the experience of visitors; or have close associations with park fundamental resources and the purpose of the park. The related resource represents a connection with the park that often reflects an area of mutual benefit or interest, and collaboration, between the park and owner/stakeholder.

The following related resources have been identified for Saugus Iron Works National Historic Site:

- **Gabbro Mine, northern end of Summer Street, Nahant.** "Rock myne" was used in the Hammersmith blast furnace to make impurities easier to separate from iron ore and to keep the smelted iron from oxidizing.
- **Local bogs.** Iron-bearing groundwater and other sediments collect in bogs and swamps where they form into lumps of iron ore. Precise locations of iron mines remain unknown, although a study of account books and deeds may reveal these historic sites.
- **Dam, on the Saugus River west of Central Street, Saugus.** Built in the mid-1640s, the dam was modified in the early 1650s and flooded more than 230 acres of land. The stored water powered bellows, hammers, and a rolling mill at Hammersmith. The wood, stone, and gravel dam was partially breached in 1682.
- **Canals, west of Central Street (or under Central Street), Saugus.** The dam that provided power to Hammersmith was located three-eighths of a mile from the site. A network of sluiceways was constructed of earth and wood to bring water to the watermills. Now subterranean, some segments of these canals survive and may still carry groundwater.
- **Charcoal House, north and west of Central Street.** The ruins of a charcoal house were discovered while tracing the headrace of the blast furnace during the archeological investigations of the 1940s and 1950s. Located near Saugus Iron Works, the stone and wood building kept the fuel dry.
- **John Winthrop Jr. Iron Furnace Site (also called Braintree Furnace), 61 Crescent Street, Quincy.** One of the earliest iron furnaces in the United States was opened in Quincy in 1645, but closed because of a lack of local iron and inadequate waterpower. The archeological site can be viewed today.
- **Appleton's Pulpit, Appleton Street, Saugus.** A historic landmark located within the bounds of the iron works. This landmark commemorates a speech made by an Appleton (owner of the iron works farm) denouncing the tyranny of Colonial Governor Sir Edmund Andros.
- **Hammersmith and Iron Works Farm Structures, Saugus.** There are many, as yet unlocated, areas within the Saugus Iron Works National Historic Site area that have archeological resources associated with the operations of both the Hammersmith and (later) Iron Works Farm periods. These resources, when identified, should be recognized as resources that reflect a connection with the national historic site.

Interpretive Themes

Interpretive themes are often described as the key stories or concepts that visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from, and should reflect, park purpose, significance, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all park significance statements and fundamental and other important resources and values.

Interpretive themes are an organizational tool that reveal and clarify meaning, concepts, contexts, and values represented by park resources. Sound themes are accurate and reflect current scholarship and science. They encourage exploration of the context in which events or natural processes occurred and the effects of those events and processes. Interpretive themes go beyond a mere description of the event or process to foster multiple opportunities to experience and consider the park and its resources. These themes help explain why a park story is relevant to people who may otherwise be unaware of connections they have to an event, time, or place associated with the park.

The following interpretive themes have been identified for Saugus Iron Works National Historic Site:

- **The Birth of the American Iron and Steel Industry and the Transfer of Iron-Making Skills.** The earliest industry in British America was iron making at Hammersmith. Saugus Iron Works National Historic Site demonstrates the manufacturing process, describes the laborers and working conditions, explains the rise and fall of the enterprise, analyzes the connection between government and the rise of modern capitalism, and highlights the multigenerational and geographic transfer of skills and knowledge that ultimately "built" the iron and steel industry in the United States.
- **Industrial Impacts on Physical, Social, and Economic Relationships with the Environment.** The industrial activity that occurred at Hammersmith shaped the local landscapes, including effects on the air, water, timber, and other natural resources. This experience can enhance understanding of the contemporary issues of climate change and fossil fuel use. Industrialization also influenced domestic life, consumer culture, and markets from the 17th century to the present.
- **Hammersmith Remembered: Archeology and Preservation as Reflected by the First Iron Works Association's "Restoration."** Saugus Iron Works is a prominent example of the Colonial Revival movement and early 20th-century historic preservation and historic archeology practices, from the Wallace Nutting restoration of the Iron Works House in 1917 to the 1950s reconstruction of the Colonial period industrial area. These historic preservation efforts were part of the first concerted attempt of a national industry working with a local community to celebrate its industrial past. It recognizes how the archeological surveys undertaken at the Saugus Iron Works between 1948 and 1953 played an important part in the evolution of the field of historical archeology.
- **Understanding American Social Characteristics (Class, Race, Ethnicity, Religion).** Colonial societal development is represented through the interactions between Puritans, indigenous peoples, prisoners of war, enslaved people, and industrial workers in Hammersmith, and later in the Iron Works Farm period. The manufacturing culture of Hammersmith, impacted by the surrounding Puritan community, reflected specific approaches to labor, class, race, and gender. The cooperation and conflict documented at Hammersmith provide context for discussing contemporary issues in U.S. society regarding similar social factors.

Part 2: Dynamic Components

The dynamic components of a foundation document include special mandates and administrative commitments and an assessment of planning and data needs. These components are dynamic because they will change over time. New special mandates can be established and new administrative commitments made. As conditions and trends of fundamental and other important resources and values change over time, the analysis of planning and data needs will need to be revisited and revised, along with key issues. Therefore, this part of the foundation document will be updated accordingly.

Special Mandates and Administrative Commitments

Many management decisions for a park unit are directed or influenced by special mandates and administrative commitments with other federal agencies, state and local governments, utility companies, partnering organizations, and other entities. Special mandates are requirements specific to a park that must be fulfilled. Mandates can be expressed in enabling legislation, in separate legislation following the establishment of the park, or through a judicial process. They may expand on park purpose or introduce elements unrelated to the purpose of the park. Administrative commitments are, in general, agreements that have been reached through formal, documented processes, often through memorandums of agreement. Examples include easements, rights-of-way, arrangements for emergency service responses, etc. Special mandates and administrative commitments can support, in many cases, a network of partnerships that help fulfill the objectives of the park and facilitate working relationships with other organizations. They are an essential component of managing and planning for Saugus Iron Works National Historic Site.

Special Mandates

There are no special mandates for Saugus Iron Works National Historic Site.

Administrative Commitments

Saugus Iron Works National Historic Site is part of the Essex National Heritage Area, which encompasses 34 cities and towns in Essex County, Massachusetts, north of Boston. The National Park Service is involved with collaborative programming and outreach with the national heritage area. The Essex National Heritage Area is a 500-square-mile area of northeastern Massachusetts. The national heritage area is home to 9,968 historic structures listed in the National Register of Historic Places, 400 historic farms, 86 significant museums, 26 national historic landmarks, 9 scenic state parks, 2 national park units, and 1 national wildlife refuge. The Essex National Heritage Area emphasizes three interpretive themes: early European settlement, maritime history, and industrial history.

Assessment of Planning and Data Needs

Once the core components of part 1 of the foundation document have been identified, it is important to gather and evaluate existing information about the park's fundamental and other important resources and values, and develop a full assessment of the park's planning and data needs. The assessment of planning and data needs section presents planning issues, the planning projects that will address these issues, and the associated information requirements for planning, such as resource inventories and data collection, including GIS data.

There are three sections in the assessment of planning and data needs:

1. analysis of fundamental and other important resources and values
2. identification of key issues and associated planning and data needs
3. identification of planning and data needs (including spatial mapping activities or GIS maps)

The analysis of fundamental and other important resources and values and identification of key issues leads up to and supports the identification of planning and data collection needs.

Analysis of Fundamental Resources and Values

The fundamental resource or value analysis table includes current conditions, potential threats and opportunities, planning and data needs, and selected laws and NPS policies related to management of the identified resource or value.

Fundamental Resource or Value	Historic Buildings and Structures
Related Significance Statements	Significance statements 1 and 2.
Current Conditions and Trends	**Conditions** • Iron Works House (constructed circa 1682; restored 1915–1917); Iron Works House Annex (constructed 1917). The Iron Works House is one of the few remaining high-style first period (1620–1725) houses in the region and was a significant restoration effort during the preservation movement of the late 19th and early 20th centuries. It currently features exhibits interpreting the history of the iron works. The annex is used for a visitor center and office space. The Asset Priority Index (API; 1–100 scale, with 100 indicating the most valuable asset to the park) is 93. The Facility Condition Index (FCI; all assets below 0.10 are in good condition; 0.11–0.14 is fair condition; 0.15–0.49 is poor condition; above 0.50 is serious condition) is 0.028 (good). • Museum Building (constructed 1917) was built in a historical style as a blacksmith shop (in the 1950s a temporary modular building was added to the museum containing an auditorium, exhibits, and a utility space). Since the 1950s, it has interpreted the site's iron-making history. The API is 93 and the FCI is 0.018 (good). • Blast Furnace (reconstructed 1952; interpreted to 1646 to approximately 1670) has an API of 80 and an FCI of 0.393 (poor). • Forge (reconstructed 1953; interpreted to 1650) has an API of 80 and an FCI of 0.225 (poor). • Slitting Mill (reconstructed1954; interpreted to 1650) has an API of 80 and an FCI of 0.204 (poor). • Iron Warehouse (reconstructed1954; interpreted to 1650) has an API of 68 and an FCI of 0.108. • The Pier (reconstructed 1954; interpreted to 1650) has an API of 80 and an FCI of 0.003 (good). • Other structures listed as contributing resources in the park's national register nomination include the Blast Furnace Sluiceway and Tailrace, Forge Sluiceways and Tailraces, Rolling and Slitting Mill, Sluiceway and Tailrace, Well, Wharf, Tailrace Bridges, Corduroy Road, Bridges over Saugus River, Saugus River Stone Bulkheads, Central Street Retaining Walls, West Bluff Stone Wall, Blast Furnace Retaining Wall, and West Bluff Stabilized Foundations. **Trends** • Targeted project funding has helped maintain structures. • National register / national historic landmark documentation has been updated.

Fundamental Resource or Value	Historic Buildings and Structures
Threats and Opportunities	**Threats** • Museum exhibits are out-of-date due to being more than 30 years old. • Only a small portion of existing interpretive products (films, Unigrid, etc.) are accessible for individuals with visual/auditory/language limitations. • The three historic structure reports that have been generated are incomplete, lacking approvals, and/or are out-of-date. • The park's structures are vulnerable to damage from increasing volume and velocity of water runoff from observed upward trends in storm frequency and intensity. • The park lacks financial resources and appropriate construction materials to maintain and rehabilitate aging structures. It is difficult to source appropriate raw materials (especially wood) for historic rehabilitation. **Opportunities** • Market use of the site as a setting for Colonial-period films. • Use structures to teach historic building techniques to public. • Use new products and techniques to improve preservation treatment. • Hold preservation walks, possibly even canoe trips. • Incorporate into the park's visitor experience understanding of the off-site historic structures that were originally part of the 17th-century Hammersmith settlement; interpret how the lost structures were once part of the settlement. • Expand interpretation about early historic preservation at the iron works. • Complete FIWA construction plan (replace triple-wide addition to museum with more sustainable structure).
Data and/or GIS Needs	• Historic structures condition assessment.
Planning Needs	• Universal design accessibility plan. • Historic structure report for Iron Works site. • Historic structure report for Iron Works House. • Exhibit plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended • Archeological and Historic Preservation Act of 1974 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Protection of Historic Properties" (36 CFR 800) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 28: *Cultural Resource Management* • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* • *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings* • *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*

Fundamental Resource or Value	Archeological Resources
Related Significance Statements	Significance statements 1 and 2.
Current Conditions and Trends	**Conditions** • The archeological resources include objects related to the Hammersmith site during the early period of operation through to when the area was converted to a farm. Between 1948 and 1953, the site was the focus of four archeological excavations, unearthing thousands of objects and structural features. • Slag Pile (1646 to approximately 1670) has an API of 80 and an FCI of 0.002 (good). • Pre-contact archeological resources are ubiquitous at the site, but have had little attention and study. The sheer numbers and types of artifacts recovered indicate the importance of this site in the pre-contact period. • Archeology is particularly important at Saugus Iron Works National Historic Site, as it forms the basis for the reconstructed industrial area. Approximately 60% of the park has been intensively surveyed, largely on the west side of the property. The remaining 40% of the site needs to be surveyed by both geophysical and archeological investigation. All sites are documented in the Archeological Sites Management Information System database with 90% in good condition; 99.9% of recovered archeological materials have been cleaned, conserved, studied, cataloged, and properly stored. • The Jenks Forge area is an important archeological resource that deserves more attention than it has received. Joseph Jenks, who was a blacksmith at Hammersmith, operated an independent workshop at the site after Hammersmith devolved into legal limbo. This area is west of the Slag Pile. Archeologist Roland Robbins excavated several waterwheels associated with Jenks during his 1948–1953 excavations. However, this archeological work did not lead to reconstruction because Jenks's operation did not fit with the First Iron Works Association's strict interpretation of Hammersmith. The Jenks story should be researched further because his sons and some of his workers disseminated the iron-making practices from Saugus elsewhere in eastern Massachusetts and to other colonies, including Rhode Island, Connecticut, and New Jersey, spurring the development of the iron industry. Currently, the Jenks area is not managed or interpreted for the Joseph Jenks story. • Major documentation includes the archeological overview and assessment (1997) and Saugus Iron Works: The Roland W. Robbins Excavations, 1948–1953 (2011). **Trends** • None identified.
Threats and Opportunities	**Threats** • Continued pattern of development in this area. The park controls only 12 of 600 acres of the original Hammersmith settlement. • Looting. • Capacity of cultural resource management incommensurate with preservation needs. • Development on the property supporting administrative, facilities management, and visitor services may disturb archeological resources. • Flooding, erosion, and saltwater intrusion from increasing volume and velocity of water runoff from observed upward trends in storm frequency and intensity. • Wildlife burrowing in the slag pile. **Opportunities** • Develop public archeology programs around the site. • Use archeological history of Saugus to engage the public with the park's historical exhibits.

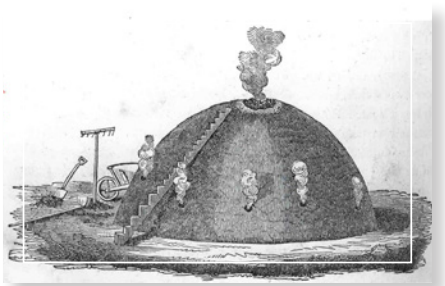
Fundamental Resource or Value	Archeological Resources
Threats and Opportunities	**Opportunities (continued)** • Improved interpretation of archeological resources can enhance the visitor experience. Provide tactile experiences for visitors to touch reproductions of archeological artifacts. • Use archeological site to engage students, including teaching mathematics and statistics. • Explain through programs and exhibits how Roland Robbins' excavations reflect the development of the field of archeology. • Engage the neighborhood in finding other archeological sites and learning more about the local history. • Map and survey sites outside the park boundary to gain more knowledge of the workers' lives. • The wharf, excavated by Roland Robbins, could be used to illustrate archeological evidence of sea level rise.
Data and/or GIS Needs	• Archeological survey and assessment of Colonial-era sites outside park boundary to determine location of 17th-century Hammersmith settlement. • Archeological surveys of pre-contact and post-1670 eras. • Historic resource study evaluating historic resources outside park boundary. • Revised archeological overview and assessment to include surrounding neighborhoods. • Geophysical survey of entire park. • Archeological base map (on GIS platform). • Archeological identification study on the Jenks Forge area. • Climate change vulnerability assessment.
Planning Needs	• Long-range interpretive plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended • Archeological and Historic Preservation Act of 1974 • Archaeological Resources Protection Act of 1979 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 28: *Cultural Resource Management* • Director's Order 28A: *Archeology* • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* • *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*

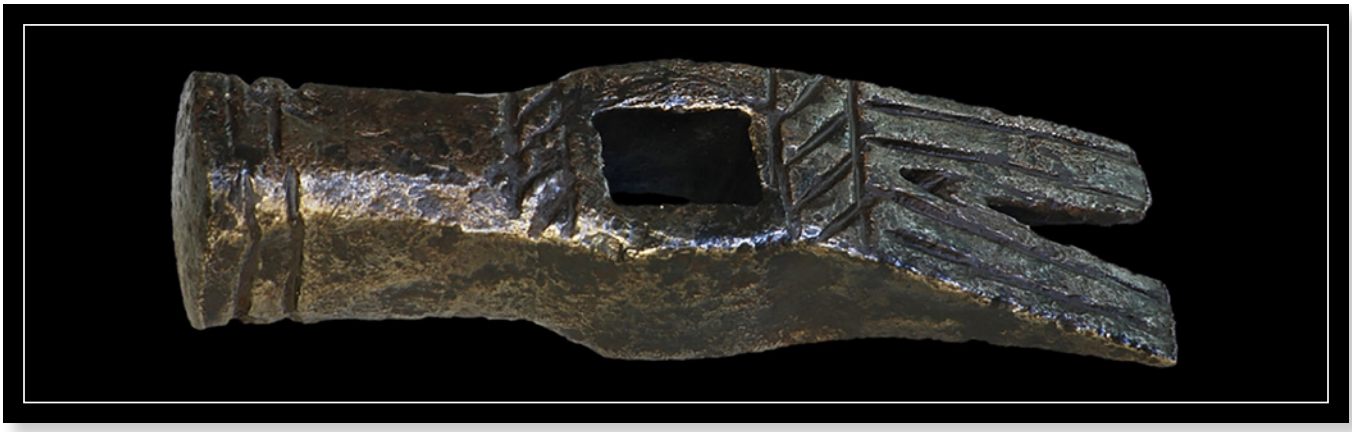
Fundamental Resource or Value	Cultural Landscapes
Related Significance Statements	Significance statements 1 and 2.
Current Conditions and Trends	**Conditions** • Industrial site landscape (contours established by Roland Robbins in 1953 to reflect 1650s appearance) has an API of 87 and an FCI of 0.000 (good). • Iron Works House landscape (developed 1917 by Wallace Nutting and 1954 by First Iron Works Association) has an API of 75 and an FCI of 0.000 (good). • Saugus River Turning Basin (restored 1954, 2007–2008) has an API of 55 and an FCI of 0.000 (good). • Waysides are in good condition, with an additional three to four new waysides needed. • Internal park signage is good; wayfinding signage on roads leading to park is very poor and needs to be completely replaced. • A cultural landscape assessment was completed in 1993, and a cultural landscape report focused on circulation (to guide an accessibility project) was completed in 2002. • An updated cultural landscape report is near completion with treatment recommendations still in preparation. • The Hamilton Street Bridge is narrow and low, constricting Saugus River flow and emphasizing sediment loading over time in the turning basin. Similarly, stormwater drainage roadway improvements in the watershed above the site have occurred over the past several years. • A large, invasive non-native phragmites colony on private land adjacent to the turning basin may expand into the park. **Trends** • Physical accessibility on-site has improved significantly since 2007, with about half of the site accessible. Expanding accessibility needs to continue.
Threats and Opportunities	**Threats** • Landscapes eligible for the national register lack accurate, complete, and reliable cultural landscape inventory data. • Increasing storm-related volume and velocity of storm water runoff from upstream on the Saugus River may modify significant park improvements to the turning basin landscape in the form of vegetation transition, sediment deposition and salt/fresh water composition, altering the cultural landscape. • Phragmites intrusion into the Turning Basin landscape can significantly alter the site. • Air pollution, which at night can scatter artificial light, is increasing the effect of light pollution on the historic setting. • The continuing development and re-zoning of abutting and surrounding lands impact viewshed values of cultural landscapes. **Opportunities** • Relocate the topside maintenance operations and the junior ranger station / old visitor center to improve viewshed, as described in the Saugus Iron Works National Historic Site general management plan (2002). • Protect Slag Pile, which is the single visible 17th-century resource. • Use park as location for partner group activities, e.g., Iron Corps and Saugus River Watershed Council. • The Nature Trail can enhance visitor experience through connections with nearby trail systems. • Visitor experience and interpretation of the park can connect to the larger region. • Volunteer opportunities for maintenance. • Improve efficiency of landscape management practices.

Fundamental Resource or Value	Cultural Landscapes
Data and/or GIS Needs	• Geo-reference the cultural landscape report. • Acoustic resources inventory. • Visual resource inventory. • Include the recommended treatments from the cultural landscape report in the Facility Management Software System crosswalk. • Climate change vulnerability assessment. • Space needs assessment.
Planning Needs	• Updated cultural landscape report with treatment plan. • Park space management strategy. • Vegetation management plan. • Resource stewardship strategy. • Goose management plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended • Clean Air Act (42 USC 7401 et seq.) • Archeological and Historic Preservation Act of 1974 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Protection of Historic Properties" (36 CFR 800) • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • NPS *Management Policies 2006* (§4.9) "Soundscape Management" • NPS *Management Policies 2006* (§4.10) "Lightscape Management" • NPS *Management Policies 2006* (§5.3.1.7) "Cultural Soundscape Management" • Director's Order 28: *Cultural Resource Management* • Director's Order 47: *Soundscape Preservation and Noise Management* • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* • *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings* • *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*

Fundamental Resource or Value	Museum Collections
Related Significance Statements	Significance statement 1.
Current Conditions and Trends	**Conditions** • The museum collection of 60,000 items includes pre-contact and contact Native American items, as well as major collections related to the colonial era of the ironworks (1646 to approximately 1670) and the 20th-century colonial revival and preservation movements. The collection consists of 19,000 archeological objects; 1,280 historic objects, including 17th-century and reproduction period furnishings and domestic objects; and 45,190 archival objects including archeological documentation, research, administrative management records, architectural drawings, and photographs. • The collections are accessioned and 99.9% cataloged. The overall condition of the museum collection is fair and improving steadily due to a condition survey and improvements to collections storage. • Collections are housed in museum-quality conditions, but the storage is at capacity. Many objects need to undergo conservation and be rehoused because they may not have been housed properly. • The park also contains a voluminous and hugely important archival collection of all First Iron Works Association materials. **Trends** • Collection inventories and monitoring are being improved.
Threats and Opportunities	**Threats** • The 1982 historic furnishings report is out-of-date and does not represent the Secretary of the Interior's standards for historic furnished structures. • The 1995 collections management plan is out-of-date. • Identified deficiencies in the NPS Checklist for Preservation and Protection of Museum Collection. **Opportunities** • The park has received a recent archives and records management survey, but the records will need to be assessed on an ongoing basis to ensure that management-related documents are included in the museum archive. • Use Internet to share ideas among parks about collections management. • New on-site and off-site exhibits would make the Saugus Iron Works story better known. • Use the collections to interpret the lives of the people who worked at Hammersmith. • Use collections to make the site more meaningful to young people.
Data and/or GIS Needs	• Expanded collections data for online catalog. • Archival material analysis of Hammersmith community-related records.
Planning Needs	• Collection management plan (update). • Exhibit plan. • Emergency collections plan. • Collection storage plan. • Collection housekeeping plan.

Fundamental Resource or Value	Museum Collections
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Museum Properties Management Act of 1955, as amended • National Historic Preservation Act of 1966, as amended • Archeological and Historic Preservation Act of 1974 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management* • NPS *Museum Handbook*, parts I, II, and III





Fundamental Resource or Value	Immersive Sensory Experience – 17th-Century Iron Making
Related Significance Statements	Significance statements 1 and 2.
Current Conditions and Trends	**Conditions** • The park's demonstrations of 17th-century iron making have been sensory experiences, providing visitors with sights, sounds, silence, the smell of charcoal and saltwater, and the opportunity to touch replica machinery. • Waterwheels and furnaces operate on a limited basis because wooden components of demonstration machinery are deteriorating. There is limited availability of natural wood for waterwheel shafts. • Increasing routine maintenance will keep the machinery in working order. • The blacksmith building is staffed irregularly by part-time employees trained to demonstrate nail production. **Trends** • Interpretation has changed over time from being delivered by re-enactors, to costumed interpreters, to uniformed interpreters.
Threats and Opportunities	**Threats** • Difficulty of obtaining historic dimension lumber for rehabilitation of waterwheels and shafts. • Noise from the modern soundscape. • Light pollution. • Machinery is at risk from flooding events. • Encroachment on park boundary from development. • Difficult to access for persons with mobility challenges. • Immersive design needs to be re-evaluated to respond to a broad public audience. **Opportunities** • Increased demonstrations of iron making, especially with interpreters in period costumes, are important, especially for engaging children. • Tactile experiences with working machinery are easier to interpret than with nonworking machinery. • Art and artists in residence can enliven the visitor experience. • The iron works can be used to interpret the working and living conditions of the ironworkers. • Connect modern technological innovation to innovations at Hammersmith and Joseph Jenks' role as inventor/engineer. • Partner with Montserrat College School of Arts as well as other museum and design-focused colleges and universities in the metropolitan Boston area. • Special events with immersive interpretation experiences for additional fee.
Data and/or GIS Needs	• Acoustic resources inventory. • Climate change vulnerability assessment.
Planning Needs	• Long-range interpretive plan. • Park asset management plan (update).

Fundamental Resource or Value	Immersive Sensory Experience – 17th-Century Iron Making
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended • Archeological and Historic Preservation Act of 1974 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Protection of Historic Properties" (36 CFR 800) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 28: *Cultural Resource Management* • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* • *The Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings* • *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*

Analysis of Other Important Resources and Values

Other Important Resource or Value	Saugus Iron Works Nature Trail
Current Conditions and Trends	**Conditions** • The Saugus Nature Trail was declared a national recreation trail in 1989. The 0.5-mile-long nature trail is a rough, undeveloped path one to four feet wide composed of a mix of wood chips, compacted soil, and grass. **Trends** • While the nature trail has been a feature of the site since its designation, the trail has remained an under-used resource by park visitors. The recent restoration of the park's tidal basin prompted additional discussion of future uses for the trail. • The trail was made partially accessible to people with mobility challenges about a decade ago.

Threats and Opportunities	**Threats**
	• Invasive plants dominate much of the trail area.
	• Trails are vulnerable to damage from increasing volume and velocity of water runoff from observed upward trends in storm frequency and intensity.
	
	Opportunities
	• The trail could be part of a regional Saugus River trails partnership.
	• The trail has the potential to become an immersive outdoor exhibit to expose visitors to the variety of flora and fauna in the park and to facilitate interpretive programs on the historic and contemporary functions of the Saugus River watershed. In 2012, staff conducted an assessment of the trail and brainstormed future development of the trail, including the potential for
	  • adding three or four interpretive waysides to the trail to highlight significant natural and cultural resources
	  • clearing a small area at the end of the trail to create an interpretive program area (i.e., natural amphitheater)
	  • accessibility improvements for visitors with mobility concerns
	  • opening the gate at the south end of the trail to provide visitors with two-way travel and access to the trail and park
	• Subsequent discussions have included connecting the trail upriver (per the General Management Plan 2002) and building a pedestrian bridge across the Saugus River to connect with the town center area.

Data and/or GIS Needs	• Trail design / pedestrian circulation study to examine the feasibility of extending trails to nearby parklands. • Climate change vulnerability assessment.
Planning Needs	• Nature trail enhancements plan. • Invasive plant management plan. • National recreation trail community integration plan.

Other Important Resource or Value	Saugus Iron Works Nature Trail
Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the OIRV** • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended • Archeological and Historic Preservation Act of 1974 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Protection of Historic Properties" (36 CFR 800) • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 28: *Cultural Resource Management* • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* • *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*

Other Important Resource or Value	Natural Resources

Current Conditions and Trends	**Conditions**
	• Saugus Iron Works National Historic Site contains or is adjacent to approximately 0.29 miles of the tidally influenced Saugus River. The park, which is about 3 miles upstream from the Atlantic Ocean, also includes the recently restored Turning Basin and estuarine marsh/wetlands adjoining the Saugus River. Saugus Iron Works National Historic Site has a forested area on the east side of the river (12% of the park).
	• Saugus Iron Works National Historic Site's natural resource condition assessment (2011) evaluated the water quality and riverbed and marsh sediments of the Saugus River watershed/ecosystem. The restoration of the Turning Basin waterfront and wetland probably removed the vast majority of contaminated wetland sediments. Recent analyses of riverbed sediments indicate that even though contaminants were present in the riverbed sediments, they were all below probable effect concentrations and were lower than observed prior to the restoration.
	• Recent observations indicate moderately good dissolved oxygen levels in the Saugus River. The concentration of numerous pollutant metals in riverbed sediments decreased following the 2007–2008 Turning Basin restoration project. The majority of the water quality parameters (e.g., dissolved oxygen, nutrients, organic enrichment, pathogens, salt inputs, thermal modifications) for the Saugus River at Saugus Iron Works are impaired, with only pH and heavy metal concentrations meeting water quality standards.
	• Vegetation (upland, wetland, and aquatic) in the park includes tidal fresh / brackish marsh and freshwater seeps that occur above the Saugus River floodplain. Total vegetation cover in the restored marsh area has remained low, and the area has functioned more as a tidal mudflat than a vegetated marsh. Submerged aquatic vegetation represents critical habitat to support fish and other nekton communities (actively swimming organisms).
	• The park hosts an assortment of wildlife (avian, fish, aquatic benthic macro-invertebrates, mammal, amphibian, and reptile).
	• The park has habitats that could host the following listed species:
	  • rainbow smelt (*Osmerus mordax*) – federal species of concern designated by National Oceanic and Atmospheric Administration
	  • wild senna (*Senna hebecarpa*) – Massachusetts endangered species
	• Air quality of the park reflects the regional air quality of New England with total nitrogen wet deposition, total sulfur wet deposition, ozone, and visibility all exceeding acceptable values for air quality.
	• The Turning Basin was initially restored in 1954, but after heavy silting and the growth of invasive plants, the Turning Basin was restored again in 2008. Contaminated sediments around the dock were removed, the historic wooden pier and bulkhead were rehabilitated, and a cobble berm was built between the river channel and the Turning Basin. In the downstream area, contaminated sediments and invasive weeds were removed, and 2.75 acres of tidal mudflat and marsh habitats were restored.
	Trends
	• Despite dredging, the Turning Basin is undergoing ongoing sedimentation.
	• The fish community has been dominated by either pollution-tolerant or moderately pollution-tolerant species. Since the removal of a downstream weir in 2009, the fish community in the Saugus River at the ironworks has been recovering.

Threats and Opportunities	**Threats** • Monitoring natural resources is limited due to staff levels and will be further diminished as the Turning Basin Project monitoring is completed in 2016. • The U.S. Environmental Protection Agency has continued to classify the Saugus River as impaired because of fecal coliform / *E. coli* pathogens. The river also has issues with mercury, dissolved oxygen, nutrients, and salt. The concentrations of heavy metals and polycyclic aromatic hydrocarbons are lower in riverine and marsh sediments since the Turning Basin reclamation project, but may be increasing again due to background levels in the river dispersing back into the project area. • Invasive Phragmites is a major presence, which requires management.

Other Important Resource or Value	Natural Resources
Threats and Opportunities	**Threats (continued)** • The anthropogenic impacts on its water resources include, but are not limited to, surface water runoff contaminated with road salt, nonpoint source pollution, sewage overflow and infiltration into groundwater, and alteration in river discharge rates. The impacts on air quality include air pollutant deposition from mercury, nitrogen, and sulfur. • Although invasive Norway maple trees and invasive shrubs have been removed from riparian forests of the park, the westside forest remains dominated by Norway maple. The shrub and herb layers in all forested areas remain co-dominated by invasive nonnative plants. • The preponderance of aquatic benthic macro-invertebrate taxa has been pollution tolerant, which indicates poor quality habitat. • Development encroachment on bottomlands. • Increasing volume and velocity of water runoff from observed upward trends in storm frequency and intensity threaten existing resources. • Documented increase in sea level rise threatens loss of freshwater ecosystem through rising groundwater table and saltwater intrusion. **Opportunities** • Work with Saugus River Watershed Council and youth and community groups to address invasive species. • A volunteer coordinator could increase volunteer efforts to protect and upgrade natural resources. • Connecting natural resources with visitors can be valuable. They can draw lessons from environmental impacts of the 17th-century ironworks. • Interpret vulnerability of inland sites to changes in coastal environment. • Implement best practices for sustainability to demonstrate environmental leadership.
Data and/or GIS Needs	• Upgraded natural resources inventory and monitoring. • Strengthen long-term natural resource monitoring in park and engage with NPS Inventory and Monitoring Program. • Preliminary data assessment on Slag Pile; include assessment of hazards to Slag Pile. • Ongoing regional air quality monitoring providing update conditions for pollutant deposition in the park. • Climate change vulnerability assessment.
Planning Needs	• Goose management plan. • Vegetation management plan. • Resource stewardship strategy (to be combined with Salem Maritime National Historic Site).
Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the OIRV** • Clean Air Act (42 USC 7401 et seq.) • National Invasive Species Act • National Environmental Policy Act of 1969 • Clean Water Act • Executive Order 11514, "Protection and Enhancement of Environmental Quality" • Executive Order 13112, "Invasive Species" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (chapter 4) "Natural Resource Management" • NPS *Natural Resource Management Reference Manual 77*

Identification of Key Issues and Associated Planning and Data Needs

This section considers key issues to be addressed in planning and management and therefore takes a broader view over the primary focus of part 1. A key issue focuses on a question that is important for a park. Key issues often raise questions regarding park purpose and significance and fundamental and other important resources and values. For example, a key issue may pertain to the potential for a fundamental or other important resource or value in a park to be detrimentally affected by discretionary management decisions. A key issue may also address crucial questions that are not directly related to purpose and significance, but that still affect them indirectly. Usually, a key issue is one that a future planning effort or data collection needs to address and requires a decision by NPS managers.

The following are key issues for Saugus Iron Works National Historic Site and the associated planning and data needs to address them:

- **Rehabilitation of the Industrial Machinery.** The working waterwheels and the equipment they power provide an immersive sensory and learning experience for visitors. The demonstrations are presented by NPS staff and volunteers. The seven waterwheels and their long wooden shafts must be replaced every 10 to 15 years. Currently, only some of the machinery functions for demonstrations. The trees that were originally used to make the waterwheels and shafts were made from very large dimension lumber, which is not found in abundance anymore. The craftsmanship to build the wheels and shafts is rare. The park must find new ways to recreate these wheels in a sustainable manner and cultivate a new generation of craftspeople to maintain these working components. This could be done through the park asset management plan, which would identify appropriate materials to rehabilitate machinery.

- **Visitation and Visibility.** Historically, Saugus Iron Works National Historic Site was open year-round and welcomed an average of 40,000 visitors per year. In recent years, it has only been open from May through October and now welcomes an average of 10,000 visitors per year. The park is reassessing visitor experience and public outreach strategies. This includes updating its interpretive strategy, exhibits, messaging, public relations, and wayfinding infrastructure (directional road signs) to increase public awareness and provide clearer access to the park. A long-range interpretive plan and exhibit plan would help address this key issue.

- **Understanding the Historic Hammersmith Community.** The Hammersmith community (comprised more than 600 acres and 50 buildings) that was active on the Saugus River between 1646 and 1670 extended outside the existing park boundary, which only includes 2% of the original site. Important parts of the Hammersmith story, especially the lives of the workers, are not well understood. Further historical and archeological research focused on the entire Hammersmith community could provide important information for better understanding and interpreting the site. A revised archeological overview and assessment to include surrounding neighborhoods and a historic resource study for the Hammersmith community would help address this key issue.

- **Understanding the Administrative History.** An administrative history should be undertaken to provide a historical perspective on the development of Saugus Iron Works National Historic Site.

- **Integrated Resource Management in a Cultural Landscape.** The rehabilitation of the historic waterfront structures and restoration of ecological habitats and processes through the Turning Basin restoration project in 2007–2008 has set the stage for a new era of integrated resource management. The challenge going forward is to develop a sustainable program that preserves the cultural landscape features associated with the historic ironworks while also preserving and enhancing the natural resource values of the river, forest, and wetland habitats. Such a strategy would entail developing a vegetation management plan that would include managing invasive species. A goose management plan would also be needed.

  The Turning Basin, which was restored in 2007–2008, and the historic iron works Slag Pile are important features of the cultural landscape that are within a dynamic river system that is predicted to experience higher water levels and more sediment transport in the future. The open water Turning Basin has begun to fill in following restoration, and the Slag Pile contains possible hazards that must not be released into the river system. Observed increases in sea level may lead to rising groundwater tables, more sediment transport, and alteration of the flow regime of the Saugus River. These changes could result in the alteration of water chemistry and biotic community of the park's ecosystem.

  Therefore, it would be beneficial for the park to develop a resource stewardship strategy to maintain historic and ecological integrity as well as to ensure environmental health and safety of the site, with particular attention to the waterfront.

Planning and Data Needs

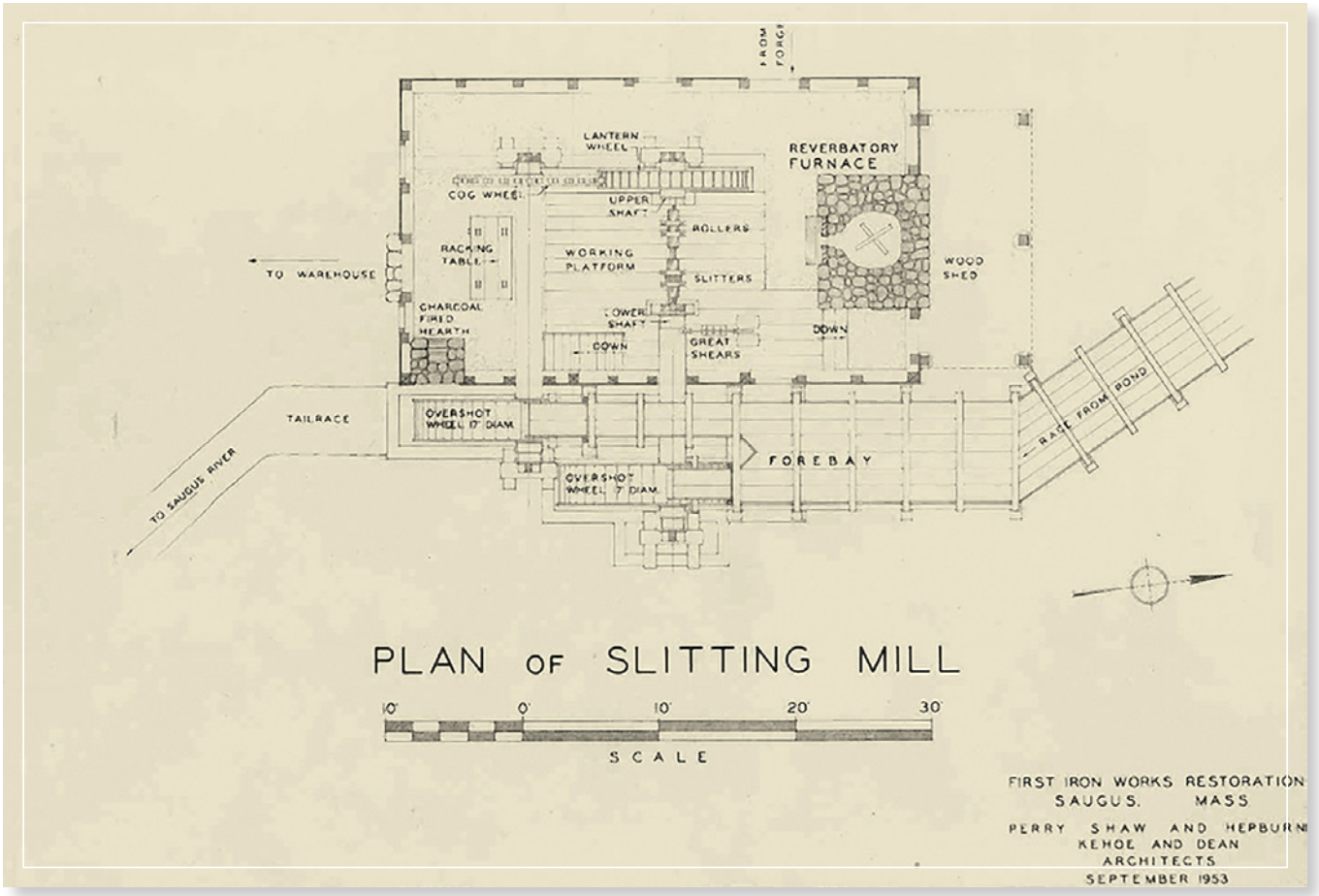
To maintain connection to the core elements of the foundation and the importance of these core foundation elements, the planning and data needs listed here are directly related to protecting fundamental resources and values, park significance, and park purpose, as well as addressing key issues. To successfully undertake a planning effort, information from sources such as inventories, studies, research activities, and analyses may be required to provide adequate knowledge of park resources and visitor information. Such information sources have been identified as data needs. Geospatial mapping tasks and products are included in data needs.

Items considered of the utmost importance were identified as high priority, and other items identified, but not rising to the level of high priority, were listed as either medium- or low-priority needs. These priorities inform park management efforts to secure funding and support for planning projects.

Planning Needs – Where A Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
FRV / OIRV / Key Issue	Resource stewardship strategy	H	Develop integrated resource management strategies; also focus on ongoing dredging of Turning Basin.
FRV / OIRV / Key Issue	Vegetation management plan	H	Would include invasive management plan and dredging plan. Would integrate information from cultural landscape report and natural resource inventories.
FRV / Key Issue	Long-range interpretive plan	H	Make visitor experience more interactive; help attract new audiences. Emphasis on making archeological objects relevant to the public.
FRV	Universal design accessibility plan	H	Complex site requires accessibility plan.
FRV	Updated cultural landscape report with treatment plan	H	Update cultural landscape report with treatment recommendations that address surrounding vegetation management, a consolidated eastbank maintenance locale, and a relocated/reused junior ranger station.
FRV / Key Issue	Exhibit plan	H	Current exhibits are 30-plus years out-of-date.
FRV	Collection storage plan	H	Plan is needed.
FRV	Historic structure report for Iron Works site	H	Particular focus on industrial buildings.
FRV	Historic structure report for Iron Works House	H	Need to evaluate sequence of restoration.
FRV	Park space management strategy	H	Plan needed to efficiently use park space.
FRV / Key Issue	Park asset management plan (update)	M	Identify appropriate materials to rehabilitate machinery.
FRV / OIRV / Key Issue	Goose management plan	M	Park has had difficulty managing geese.
OIRV	National recreation trail community integration plan	M	Implementation plan for needed enhancements.
OIRV	Invasive plant management plan	M	Invasive plants are an issue in the Saugus River watershed.
FRV	Immersive experience design plan	M	Needed to identify strategies to provide a broader immersive experience to a wider audience.
FRV	Emergency collections plan	L	Plan is needed.
FRV	Collection management plan (update)	L	Plan is needed.
FRV	Collection housekeeping plan	L	Plan is needed.
OIRV	Nature trail enhancements plan	L	Needed to inform improvements to trail.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	**Data Needs**	**Priority (H, M, L)**	**Notes**
FRV / Key Issue	Revised archeological overview and assessment to include surrounding neighborhoods	H	Areas that have not been surveyed need to be to fully understand ironworks site.
FRV	Include the recommended treatments from the cultural landscape report in the Facility Management Software System crosswalk	H	This measure would promote implementation of recommended landscape treatments.
FRV	Archeological base map (on GIS platform)	H	
FRV	Space needs assessment	H	Needed to inform space use management strategy.
FRV	Archeological survey and assessment of Colonial-era site outside park boundary to determine location of 17th-century Hammersmith settlement	H	There is significant potential for learning more about the Saugus Iron Works through such research.
FRV	Archeological surveys of pre-contact and post-1670 eras	H	There is significant potential for learning more about the early Colonial period in the Saugus and Lynn area through such research.
OIRV	Trail design / pedestrian circulation study to examine the feasibility of extending trails to nearby parklands	H	Plan would identify opportunities to establish connection to community trail networks.
Key Issue	Historic resource study for the Hammersmith community	M	Currently inadequate understanding of the overall 17th-century Hammersmith community.
OIRV	Preliminary data assessment on Slag Pile	M	Slag Pile is the only remaining 17th-century resource in the park; include assessment of hazards to Slag Pile.
FRV	Acoustic resources inventory	M	This has not been done.
FRV	Geophysical survey of entire park	M	Survey will be used to predict impacts of erosion, park development, and prioritize identification studies.
FRV	Historic structures condition assessment	M	Needed to identify preservation maintenance needs.
FRV / OIRV	Climate change vulnerability assessment	M	Threats to site from climate change.
FRV	Archival material analysis of Hammersmith community-related records	M	Improve understanding of resources associated with Hammersmith as well as identify historic relevancy for immersive experience/interpretation.
Key Issue	Administrative history	M	Needed to understand context of past management decisions.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	**Data Needs**	**Priority (H, M, L)**	**Notes**
FRV	Visual resource inventory	L	Identify scenic values, including for resources outside of park boundaries.
FRV	Archeological identification study on the Jenks Forge area	L	This research can enhance understanding of site after closing of Iron Works.
FRV	Expanded collections data for online catalog	L	Online catalog would provide useful service.
FRV	Geo-reference the cultural landscape report	L	Better understanding of layout of Hammersmith community.
OIRV	Upgraded natural resources inventory and monitoring	L	Changing natural resources needed careful monitoring.
OIRV	Strengthen long-term natural resource monitoring in park and engage with NPS Inventory and Monitoring Program	L	Concern for conditions of park natural resources.
OIRV	Ongoing regional air quality monitoring providing update conditions for pollutant deposition in the park	L	Total sulfur wet deposition, ozone, and visibility exceed acceptable values for air quality.



Part 3: Contributors

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Appendixes

Appendix A: Enabling Legislation for Saugus Iron Works National Historic Site

Public Law 90-282
April 5, 1968

An Act to establish the Saugus Iron Works National Historic Site in the State of Massachusetts, and for other purposes.

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, That in order to preserve in public ownership the first sustained integrated ironworks in the Thirteen Colonies, the Secretary of the Interior may acquire by donation, purchase with donated or appropriate funds, or otherwise lands and interest in lands within the boundaries of the area depicted on drawing numbered NHS-SI-710013, entitled 'Proposed Saugus Iron Works National Historic Site', dated May 1967, which is on file in the Department of the Interior. The property acquired pursuant to this section shall be known as the Saugus Iron Works National Historic Site.

Sec. 2. The Secretary shall administer the Saugus Iron Works National Historic Site in accordance with the Act approved August 25, 1916 (39 Stat. 535), as amended and supplemented, and the Act approved August 21, 1935 (49 Stat. 666).

Sec. 3. There are authorized to be appropriated $400,000 to carry out the purposes of this Act.

Approved April 5, 1968.

Appendix B: Saugus Iron Works National Historic Site Interpretive Themes Matrix

About the Interpretive Theme Matrix. An interpretive theme matrix is a chart that shows detail and the scope of potential stories that can be told in a park in the framework of the park interpretive themes. The matrix is a format that offers an easy way for people to see the concepts and stories that are represented by the park interpretive themes. It is especially useful as a guide for park staff and others who develop interpretive programming and media.

Theme 1: The Birth of the American Iron and Steel Industry and the Transfer of Iron-Making Skills
About this theme: This theme establishes the local, regional, and global importance and influence of the ironworks by discussing the technological, scientific, economic, and political elements of iron manufacturing from the 17th century through the present day. It explains the manufacturing process, discusses laborers and working conditions, examines the rise and fall of the enterprise and highlights the multi-generational and geographic transfer of skills and knowledge that ultimately "built" the iron and steel industry of the United States. This last connection is essential for explaining the relevance of this almost 400-year-old operation to citizens today.
Concepts
• Old Versus New World Technologies • Compare / Contrast Hammersmith With Other North American / Global Iron Works • The Importance of Iron and Metal in Early Settlement and Colonization • The 17th-Century Industrial Process and Science of Iron Making • Labor Conditions and Roles of Workers • The Successes and Failures of the Enterprise • Development of Corporate Structures in Early Colonial America • Generational and Geographical Transfer of Knowledge • Market Conditions and Trade Dynamics • Role of Patents and Intellectual Property • Growth and Evolution of Iron/Steel Industry Post-Saugus

Theme 2: Industrial Impacts on Physical, Social, and Economic Relationships with the Environment

About this theme: This theme explains and articulates the variety of ways in which industrial activity fundamentally reshapes the relationships that individuals and groups of people have with their natural environment. It focuses on discussing the physical changes that Hammersmith had on the Saugus landscape including air, water, timber, and other natural resources. It explains the influence of early industrialization on domestic life, consumer culture, and markets from the 17th century to present. The theme also connects with contemporary issues of climate change, fossil fuel use, and industrial operations that continue to affect residential, urban, rural, and protected areas as well as quality of life.

Concepts

- Indigenous Land Use and Displacement
- Commodification of Natural Resources
- Resource Consumption and Industrial Waste
- Lasting Physical Changes and Impacts to Land, Water, Air
- Relevant Connections to Contemporary Issues of Industrial Energy Uses and Climate Change
- Contemporary Examples of Industrial Activity and Effects on Saugus River Watershed
- Modern Role of Saugus as Natural Resource Refuge/Oasis

Theme 3: The Iron Works Remembered: Archeology and Preservation as Reflected by the Iron Works "Restoration"

About this theme: This theme explores the 20th-century memorialization and commemoration of Hammersmith as reflected in the individual and collective actions by the parties responsible for the restoration. It includes reference to the role of historical memory in our culture, how we construct historical memory, and explains the broader philosophies within the U.S. historic preservation movement that led to the restoration and ensures the site's continued protection. The theme provides a detailed narrative of the 1950s reconstruction process through present-day management. It also invites the public to reflect on and discuss the resource management challenges faced today and invites them to help make decisions about how we responsibly manage public lands.

Concepts

- Commemoration and Memorialization
- The Role of Archeology at Saugus
- Early 20th Century Preservation (Colonial Revival Movement)
- Perspectives on Restorations and Reconstructions
- Organizational Evolution of the Restored Site (First Iron Works Association, AISI, National Park Service, etc.)
- Profiles of Practitioners (Roland Robbins, Louise Hawkes, etc.)
- Impacts on the Community of Saugus (past and present)
- Turning Basin Restoration
- Preservation and the Environment
  - Benefits of Preservation: Describe how preservation of historical and cultural resources and landscapeshad the benefit —sometimes unexpectedly—of protecting the environment, providing habitat for plants and animals, and offering opportunities for human enjoyment and recreation. Evaluate and debate the historical and current value of the park as open space for the community and what may be the potential for the park's value in the future.
  - Saugus SAVE (Saugus Action Volunteers for the Environment): Illustrates how the Saugus Iron Works National Historic Site has fostered connections with local environmental groups.
  - Pressures of Preservation: Invite the public to participate in descriptions of the challenges and decision-making about natural resources and how to responsibly manage public lands.

Theme 4: Understanding American Social Characteristics (Class, Race, Ethnicity, Religion) Through Interactions among Puritans, Indigenous Peoples, Prisoners of War, Enslaved People, and Industrial Workers

About this theme: This theme establishes and articulates the experiences, influences, and relationships of people directly and indirectly associated with Hammersmith. It examines key issues of race, ethnicity, religion, and discrimination as they are relevant to the operation and manufacturing culture of Hammersmith as well as the surrounding Puritan community. Most importantly, this theme provides a bridge to interpret and understand contemporary issues in U.S. culture regarding labor, class, race, and gender. It also provides a crucial platform for describing the influence and experience of indigenous peoples and native land use both before and during the 17th century, and the dispossession and enslavement of native people and people of African descent.

Concepts

- Domestic Life and Early Settlement in 17th-Century Massachusetts
- Prevailing and Contrasting Religious, Political, Social Values
- Marginalization of Indigenous People in Early Colonial New England
- Conflict and Change Through Cross-Cultural Exposure Between Workers and Families
- Illuminating Differences of Class, Religion, Power
- Battle of Dunbar and Scottish Prisoner of War Origins
- Indentured Servitude, Prisoners of War, etc.
- Consequences of Stereotyping, Prejudice, and Discrimination
- Enslavement of Africans in Early New England
- Personal Experiences
  - Indigenous People
  - Puritan Community Members
  - Secular Community Members
  - Scottish Prisoners of War
  - Women and Children
  - Investors, Managers, Politicians
  - Enslaved Men, Women, and Children in Colonial New England

Note: The concepts, ideas, and topics listed here are a representative, partial list. They represent *some* examples representing *types* of stories that *could* illustrate the concepts. They are not all-inclusive (in fact they could never be) nor are they intended to exclude any topic. A park interpretive theme is successful only if other topics and stories could be included in it.

Northeast Region Foundation Document Recommendation
Saugus Iron Works National Historic Site

September 2019

This Foundation Document has been prepared as a collaborative effort between park and regional staff and is recommended for approval by the Northeast Regional Director.

9-13-19

RECOMMENDED
Paul DePrey, Superintendent, Saugus Iron Works National Historic Site **Date**

9/23/2019

APPROVED
Gay Vietzke, Regional Director, Northeast Region **Date**

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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Foundation Document • Saugus Iron Works National Historic Site

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