

# A Vehicle for Conserving and Interpreting Our Recent Industrial Heritage

*Industry—the source of every evil and every good—  
becomes the true protagonist in the transformation of the city.*<sup>1</sup>

## Introduction

The U.S. National Park Service (NPS) has served, for the last century, as the lead agency for the conservation and interpretation of America's natural and cultural heritage. While the NPS has addressed 18th- and 19th-century industry, our more recent industrial heritage presents unique challenges because of the scale of the resources and the inherent conflicts of the stories—the societal and environmental impacts generated, both positive and negative. This nationally and internationally significant heritage moves beyond textile mills and canals to include basic and manufacturing industries, such as steel, automotive, and mining—industries that employ millions of Americans, and have changed the face of the nation and the world.

My central thesis is that 20th-century industry has left an indelible mark on the American consciousness, identity, heritage, and landscape; and that our nation, NPS, and its partners have not yet done an effective job in conserving and interpreting the nation's nationally and internationally significant industrial resources. This, despite the presence of resources that meet NPS designation criteria for significance, stories that are directly relevant to tens of millions of Americans and international visitors (NPS's constituents), and the potential for revitalization partnerships with the nation's largest corporations. Fortunately, several national heritage areas (NHAs)

are attempting to address industrial themes and resources that convey this transcendently important heritage. America's 20th-century industries—particularly the automobile and steel industries—transformed not only America, but also the entire world. These resources and their embedded stories are a source of pride, community identity, innovation, and beauty for our nation (Figure 1). The opportunities are ripe and time is of the essence, as we are losing significant resources to the inevitable march of technological evolution, industrial modernization, and abandonment, and an entire generation of Americans has grown up without knowledge of



Figure 1. Above: *Criss Cross Conveyors*, by Charles Sheeler, 1932 (The Henry Ford, Benson Ford Archives). Below: *Sheeler Redux*, by Jett Lowe, 2001 (Historic American Engineering Record, Library of Congress).

the role of manufacturing.

### **Context**

The industrial landscape is constantly becoming obsolete. Each era brings another paradigm shift in manufacturing techniques and technologies, manifesting themselves physically and geographically in the world. This is increasingly true in the 20th and 21st centuries, as technological advancements and the globalization of industries accelerate. But the industrial landscape is a wellspring of memory, and therefore a powerful force for learning and change. The heritage of such sites, and their associated architecture and infrastructure, can and have been utilized as a basis for revitalization, both in an economic and cultural sense, regaining valid meaning for contemporary society. Beyond their infrastructure and location value, these sites contain tremendous information and cultural value, as I argued in my master's thesis, "Rethinking the Industrial Landscape: The Future of the Ford Rouge Complex,"<sup>2</sup> and represent, as Spiro Kostof said, "benchmarks of an excelling vision."<sup>3</sup>

### **European Trends and Precedents<sup>4</sup>**

Europe provides over 30 years of experience in projects dealing with the recent industrial past, characterized by partnerships and investment by both the public and private sectors. As the U.S. was celebrating its bicentennial, Europe was already conserving and interpreting their 20th-century industrial heritage. It may seem natural for countries that live with thousands of years of built heritage to easily

embrace their industrial resources, as they do with their historic residential infrastructure. But the European conservation and re-use ethic cannot merely be explained by its being confined to a limited geographic area. It represents an entrenched ethic of putting the cultural landscape into a continuous cycle of use. European nations have also actively sought international recognition of their industrial resources. UNESCO (United Nations Educational, Scientific, and Cultural Organization) recognizes the significance of industrial heritage as an important aspect of world civilization, stating: "Industrial sites are important milestones in the history of humanity, marking humankind's dual power of destruction and creation that engenders both nuisances and progress. They embody the hope of a better life, and the ever-greater power over matter."<sup>5</sup> To date, 33 industrial sites have been designated as World Heritage Sites in Europe, South America, and Asia. Despite the obvious international significance of our recent industrial heritage, none have been nominated by or designated in the United States.

The United Kingdom is credited as the first country to celebrate and invest in industrial heritage. Since the 1970s, the U.K. has established the Heritage Lottery Fund and the SITA Environmental Trust to provide grants to support a wide range of local, regional, and national heritage projects.<sup>6</sup> The project that launched the movement in the U.K. was Ironbridge Gorge, Coalbrookdale, England, significant as the site of the world's first iron bridge, the birthplace of the industrial revolution, and designated as a World Heritage

Site in 1986. Since 1971, nine sites have been developed along the Severn River, and over £20 million have been raised for preservation and interpretation. European examples of conservation of 20th-century industrial resources are identified in Table 1.

### North American Trends and Precedents

In the 1980s, the Canadian government, through Parks Canada, began embracing industrial heritage with the

Welland and Lachine canal projects. Since then, the Canadian government has invested millions in restoration and interpretation, including the creation of linear parks and adjacent neighborhood revitalization.<sup>8</sup> The trend began later in the United States, a nation whose citizenry did not embrace historic preservation until its bicentennial in 1976. Fewer than 10% of the 2,400 national historic landmarks (NHLs) in the U.S. relate to industrial production processes, busi-

Table 1. European precedents addressing 20th-century industry.

Project / Location	Year Initiated/Lead	Significance	Conservation of Resources
<b>Fiat Lingotto</b> / Turin, Italy	1988–1995. Fiat SPA initiated an international design competition, and provided investment	Fiat's main factory, built in 1914, and modeled on Henry Ford and Albert Kahn's Highland Park Plant	The Lingotto, redesigned by Renzo Piano, now serves as a university, offices, auditorium, hotel, and retail center
<b>La Halle Tony Garnier</b> / Lyon, France	1988. The city of Lyon, the owner, decided to rehabilitate	1909 slaughterhouse and World War II ammunition factory was part of a larger complex that was demolished in the 1970s	The remaining facility (700 feet long, 200,000 square feet in area) to host concerts, exhibits, conventions, and sports events, similar to Halle de la Vilette in Paris
<b>Emscher Park—The International Building Exhibition (IBA)</b> / Ruhr Valley, Germany	1989. IBA was established by the state of North-Rhine-Westphalia to coordinate the ecological and economic renewal of the then-depressed Ruhr district, with 2 million residents	The Ruhr Valley has long been the industrial heartland of Germany, fueling the country's military and economic prowess through the 1970s	Seven master plans have been developed, linking 19 sites. Close to 100 projects are currently underway, from re-use of industrial buildings to land reclamation and neighborhood and housing development
<b>Volklingen Ironworks</b> / Saarland, Germany	1986. In that year, furnaces went out of production, and in 1992 Saarland began redevelopment	A World Heritage Site, Volklingen is the only intact example in Western Europe and North America of an integrated ironworks built and equipped in the 19th and 20th centuries	In 1999, the European Center of Industrial Art and Culture opened on site
<b>Tate Modern (art museum)</b> / London, England — south bank of the River Thames	1981. In that year, the power station closed. In 2000, the U.K. Millennium Commission publicly funded the rehabilitation	Former Bankside Power Station, built in two phases from 1947–1963	The building has been adaptively re-used to house the Tate Modern Collection. In 2001, the museum drew over 5 million visitors

ness, energy, or extraction/mining themes.<sup>9</sup> In addition, only 4 of 388 National Park System units deal with 20th-century industrial or labor themes.<sup>10</sup> Moreover, recent efforts to gain designation for industrial sites have been met with NPS resistance—largely due to issues of feasibility and cost.<sup>11</sup>

The Historic American Engineering Record (HAER) was established in 1969 by NPS, the American Society of Civil Engineers, and the Library of Congress. HAER reflects “the Federal Government’s concern for the destruction of American’s industrial and engineering heritage, and the need for a well-informed assessment as a basis for deciding what should be preserved.”<sup>12</sup> Since 1969, HAER has documented close to 2,000 buildings, sites, and structures, though a large percentage of the resources documented have been since lost. Both the Rouge Complex and Homestead/Carrie (described below) have been documented by HAER.

The NPS began embracing U.S. industrial heritage with the designation in 1978 of the Lowell National Historical Park in Lowell, Massachusetts. Lowell commemorates America’s industrial revolution, 19th-century industrialization through the early textile industry, and themes of immigration and urbanization.<sup>13</sup> Over 4 million square feet of vacant mill space and 5.6 miles of canals have been revitalized since designation—both as NPS visitor sites and through other public and private institutional, residential, and commercial development. Lowell, the Blackstone River Valley in Rhode Island and Massachusetts, and

several other NPS units interpret U.S. 18th- and 19th-century industrial heritage. During the 1990s, NPS began to consider 20th-century and World War II-era industrial resources for inclusion in the system. NPS units and affiliated areas that address 20th-century industrial and labor history are identified in Table 2.<sup>14</sup> In 1991, Congress authorized NPS to conduct a NHL theme study on American labor history. The purpose of the *Labor History Theme Study* was to identify key sites in American labor history; nominate as NHLs those districts, sites, buildings, and structures that best illustrate or commemorate that history; and prepare a list of most appropriate sites for “possible park units.” Twelve years later, the study is in Phase IV and has yet to be submitted to Congress for further direction.<sup>15</sup>

In 1984, U.S. Congress designated the first NHA—the Illinois and Michigan Canal near Chicago. NHAs were conceived of as being a partnership between NPS and the local community to extend the NPS mission of resource preservation and interpretation without direct ownership and management.<sup>16</sup> While many of the twenty-three NHAs designated to date deal with pre-20th-century industrial resources and stories, there are currently only two nationally designated NHAs that are defined by 20th-century industrial and labor heritage and focus on the re-use and interpretation of resources of national importance.<sup>17</sup> These NHAs still possess, intrinsic to their cultural landscapes, 20th-century “living industries.” Two of the best examples of this are within the boundaries of the MotorCities–Automobile

Table 2. NPS units addressing 20th-century industry and labor.

Park Unit / Location / Year Designated	Significance	Conservation of Resources
<b>Wrangell-St. Elias NP&amp;Pres (Kennecott Mines)</b> / Kennecott, Alaska / 1980 (Kennecott NHL 1986)	Kennecott Mines are one of the largest and most intact abandoned copper mining enclaves in the United States	The dilapidated state of resources has limited public access, interpretation, and conservation efforts
<b>Keweenaw NHP</b> / Calumet and vicinity, Michigan / 1992	Interprets copper mining and processing and its effects on settlement in Michigan's Upper Peninsula. The period of significance for its resources runs from 1840 until 1968	Keweenaw is a partnership park and virtually all land and buildings within the park boundary remain privately owned. Calumet & Hecla Library and General Office buildings have been adaptively re-used to serve as park headquarters; Quincy Mine Pay Office serves as office space; Quincy Mine Shafthouse #2 is operated by park partners as a historical attraction
<b>Rosie the Riveter / World War II Home Front NHP</b> / Richmond, California / 2000	Former Henry Kaiser Shipyards, buildings and sites associated with the industrial, governmental, and citizen efforts that led to victory in World War II. None of the resources within the park are NHLs, though several are on the National Register	Rosie is a partnership park; most of its 14 sites are city- or privately owned, and will remain so, coordinating adaptive re-use with the NPS. The park includes a 561,000-square-foot, Albert Kahn-designed Ford Assembly Building. This structure and its oil house are undergoing adaptive re-use by local partners. Many park resources will retain their original uses
<b>Port Chicago Naval Magazine National Memorial</b> / Concord Naval Weapons Station, California, on the Sacramento River / 1992	Site of an explosion on July 17, 1944, that killed 320 men, 202 of whom were African American enlisted men. The incident sparked protests that led to the military's end to racial inequality after World War II	Port Chicago is an affiliated area of the National Park System and remains an U.S. Naval base. Visits must be arranged in advance and require an U.S. Navy escort for entry to the site, making it of limited interpretive value to the general public

NHA (MotorCities-ANHA) and Rivers of Steel NHA, respectively: Detroit, still the capital of the global automobile industry on which one in seven U.S. jobs depends; and Pittsburgh, still the headquarters of the U.S. steel industry.

### The Ford Rouge Complex

MotorCities-ANHA was designated by Congress in 1998, and is located

in a 10,000-square mile, 13-county area in southeastern and central Michigan. Telling the nationally significant story of the American automobile industry, the Automobile National Heritage Area Partnership, Inc., manages MotorCities-ANHA through a cooperative agreement with NPS. MotorCities-ANHA's mission is to preserve, interpret, and promote Michigan's rich automotive and labor

heritage in ways that are meaningful and relevant to contemporary society. Within the MotorCities-ANHA boundaries lie over 1,200 documented 20th-century industrial and labor history resources, 16 of which are NHLs. A key resource and NHL, the Ford Rouge Complex, serves as a case study.

**The story and significance of the Rouge.** The Ford Motor Company (FMC) Rouge Complex is located on 1,200 acres along the banks of the Rouge River<sup>18</sup> in Dearborn, Michigan. The dense urban context of the Rouge is metropolitan Detroit, home to 4.6 million residents, and a historically mixed industrial, residential, and commercial district—including the extensive FMC campus. Throughout its 86-year history the Rouge has served as the centerpiece of the regional automotive economy in southeastern Michigan and automotive manufacturing in the U.S. From modest begin-

nings on remote farmland and marsh in 1917, Henry Ford and architect Albert Kahn’s joint vision for the Rouge quickly eclipsed their revolutionary Highland Park facility, inherited its assembly line, and grew to become the largest manufacturing complex in the world, with, at its peak, 15 million square feet under roof (Figure 2). The self-proclaimed “industrial city” was admired, imitated, portrayed, and visited by millions of industrialists, dignitaries, artists, designers, architects, and tourists from every corner of the world. By the 1930s, artists such as Diego Rivera and Charles Sheeler captured Ford’s immense facility and Kahn’s architectural innovation, their images published and communicated around the world. There are few other sites in the world that are so charged with historic and cultural meaning; which are of significance at a local, national, and international level; and where the juxtapo-



Figure 2. Ford Rouge Plant, circa 1930 (Ford Motor Company Archives).

sition of 20th- and 21st-century industrial landscape and technology meet.<sup>19</sup>

The Rouge grew out of Ford's personal obsession with industrial self-sufficiency. Here he perfected the "vertical manufacturing" approach, bringing in raw materials—iron ore, coal, limestone, sand—via water, road, and rail, then converting them into steel, parts, components, and, ultimately, automobiles at a rate of 10,000 per day. Hourly employment at the Rouge rose to over 98,000 in 1929.<sup>20</sup> But at the time, employment with FMC was not all privilege, and the Rouge became the site of several significant labor actions, including the 1932 Ford Hunger Strike and the 1937 Battle of the Overpass, which catapulted labor leader Walter Reuther and the United Auto Workers into the national spotlight and led to the unionization of FMC by 1941. The NHL district designation of the Rouge occurred in 1978, concluding "the Rouge signally worthy because of its unique nature and its vital contributions to improved manufacturing techniques."<sup>21</sup> By the 1980s, the globalization of the auto industry and national recession caused FMC to re-evaluate the central role of their historic facility. In 1985, Ford Land Development created a plan entitled *Rouge Complex: An Outline for Orderly Evolution*, based on the assumption that a number of plants within the complex would be phased out for reasons of obsolescence or as a result of the company's approach to bringing products to the market.<sup>22</sup> In 1989, a consortium of four companies purchased Rouge Steel, separating the site

and its utilities along Road 4. In the early 1990s, community advocacy for the conservation of the Rouge NHL began, and it became a key resource in the community's argument for the designation of the Automobile National Heritage Area.

**Plans for re-use and interpretation.** FMC began its "Rouge Heritage 2000" master plan on May 3, 1999, when FMC Chairman and Chief Executive Officer William Clay Ford, Jr., announced at the National Earth Day celebration, "If there is a symbol of the Ford Motor Company, it's the Rouge. For us to walk away would have been an absolute crime.... [W]e just can't keep moving on and building new sites."<sup>23</sup> Since that time, FMC has committed \$2 billion to transform the icon of 20th-century industrialism into an icon of 21st-century sustainable manufacturing. The project has a clear environmental agenda, with improvement of the site's natural and work environments taking precedence over the Rouge's nationally significant cultural resources. In 2000, FMC retained William McDonough<sup>24</sup> and subconsultants to create the five-year master plan, which includes the construction of a new 1.6-million-square-foot Dearborn Truck Plant (DTP), featuring flexible manufacturing, energy and waste efficiency, roof-top monitors for natural sunlight, a 10.4-acre living roof (the world's largest), and greatly improved working conditions on the plant floor. The DTP will replace the historic Dearborn Assembly Plant (DAP) on site, producing F-150 series pick-up trucks. Other site features include a new 735,000-square-foot body shop, porous pave-



ment, stormwater cleaning swales to mimic the natural action of wetlands, and a 1.5-mile greenbelt along Miller Road.<sup>25</sup> All site improvements will greatly benefit the water quality of the Rouge River watershed, once named the largest point-source of pollution in the Great Lakes basin.

The Ford Rouge Center project has evolved into a partnership for the interpretation of the Rouge and its nationally significant 20th-century industrial heritage. A partnership has been legally contracted between FMC and The Henry Ford (THF; formerly known as the Henry Ford Museum & Greenfield Village) in Dearborn, Michigan. According to Patricia Mooradian, chief operating officer at THF, the objective of a planned two-hour Ford Rouge Factory Tour (FRFT) is “to focus on the history of manufacturing—manufacturing in America and the world.”<sup>26</sup> Visitors will begin the FRFT at THF, boarding buses equipped with video monitors to watch a presentation en route to the Rouge that highlights key landmarks in Dearborn, including the FMC campus. Once at the Rouge, visitors get a brief site tour, with a video highlighting significant locations on site. Visitors then arrive at a new “state-of-the-art” Rouge Visitor Center next to the DTP, which FMC has specifically designed and built for this purpose.<sup>27</sup>

The visitor center features two film experiences: “The Legacy Theatre,” showing an 11-minute film that highlights the history of the Rouge, labor, and manufacturing, and the “Art of Manufacturing,” an overview of contemporary auto manufacturing. This 10-minute, multi-sensory experience

is intended to be “completely immersive, enveloping the visitor with all the visual and sensory effects of the manufacturing floor.”<sup>28</sup> Visitors then take an elevator to a roof-top observation deck where, surrounded by glass, they view the DTP green roof, a panorama of the entire plant, the Detroit skyline, and interpretive displays on the environmental features which make the Rouge a model for sustainable manufacturing. Returning down the elevator, visitors traverse a walkway to the new DTP where they enter on the mezzanine level 18–24 feet above the plant floor and look down on the operations of the plant. Along the mezzanine walkway, interactive video monitors explain what workers are doing on the plant floor below. Visitors then return to the visitor center and experience a timeline of vehicles that have been made at the Rouge, including the Model A and Mustang. On the return bus trip, visitors view a closing video with additional information on what they can see to round out their experience. According to Mooradian, “The objective is to give visitors enough to whet their palate, then tell them where they can get more information and detail, through books, web site links, etc.”<sup>29</sup>

Adaptive re-use and interpretation of the historic buildings and infrastructure of the Rouge has been secondary to the development of FRFT. The McDonough master plan shows much of the most significant and intact fabric being demolished for new construction, surface parking lots, and wetland swales. Last year, perhaps the most seminal industrial building of the 20th century—Albert Kahn’s 1923

glass plant—was partially demolished to make way for construction of the new body shop. However, under the leadership of Timothy O'Brien, vice president of corporate relations, FMC is currently restoring the glass plant façade and remaining 570,000 square feet. FMC is being meticulous with this remnant, recreating the plant's four signature "stacks," and identifying the original manufacturer of the glass in the façade (Crittle) to recreate the single-pane steel sash details, but does not yet have a program for the facility. O'Brien's hopes that "once people within the company see how fantastic the building is, someone will want it."<sup>30</sup> O'Brien has also led the recreation of the historic Road 4 overpass, site of the 1937 Battle of the Overpass and named by NPS as one of the top ten labor history sites in the nation.<sup>31</sup> A new brick entryway is also planned where FMC will site an interpretive park with waysides to honor the decades of workers at the Rouge and serve as a memorial to the Battle of the Overpass and the 1999 power house disaster that claimed six lives.<sup>32</sup>

Over the next five years, O'Brien hopes to increasingly address the historic buildings on site, stating that "the biggest challenge is getting the corporation to appreciate that the Rouge is something of significance, intrinsic to American culture, and convincing operating divisions that adaptive re-use can be of value to them."<sup>33</sup> Buildings on his list include the historic 1922 power house<sup>34</sup> and the historic 1917 DAP.<sup>35</sup> O'Brien reminds us that the Rouge is not a museum, but a functioning manufacturing plant—and the company will

have to make "tough but conscious decisions as they work their way through the site."<sup>36</sup> Under directive from the U.S. Environmental Protection Agency (EPA), FMC has been remediating approximately 30 acres of the Rouge Steel site, south of Road 4 and west of Miller Road. In coming years, FMC and Rouge Steel will address taking down the now-obsolete coke ovens and other steel infrastructure and reprogramming the land.

The MotorCities-ANHA general management plan (GMP) includes an optimistic vision for the Rouge's historic infrastructure, proposing that the core of the site—with its most significant buildings and infrastructure—could be reclaimed through adaptive re-use for an on-site interpretive experience. The GMP advocates using the "historic core of the Rouge site to enhance the visitor experience ... making use of the dramatic 'cultural landscape' of the Rouge Plant" to create an industrial interpretive park in the manner of Emscher Park in Germany.<sup>37</sup> The proposal features visitors arriving via boat or bus, then being "processed" through the site in the same way that raw materials were processed into a finished vehicle (Figure 3). The GMP also suggests that "visitors could be safely guided through the massive sculptural elements of the early Rouge Plant where the blast furnaces, the high line, the foundry and the old coking tower might be used to expose visitors to the massive scale of this landmark plant and provide interpretive content."<sup>38</sup> The GMP also emphasizes the Rouge as an important resource and visitor services point in proposals for local

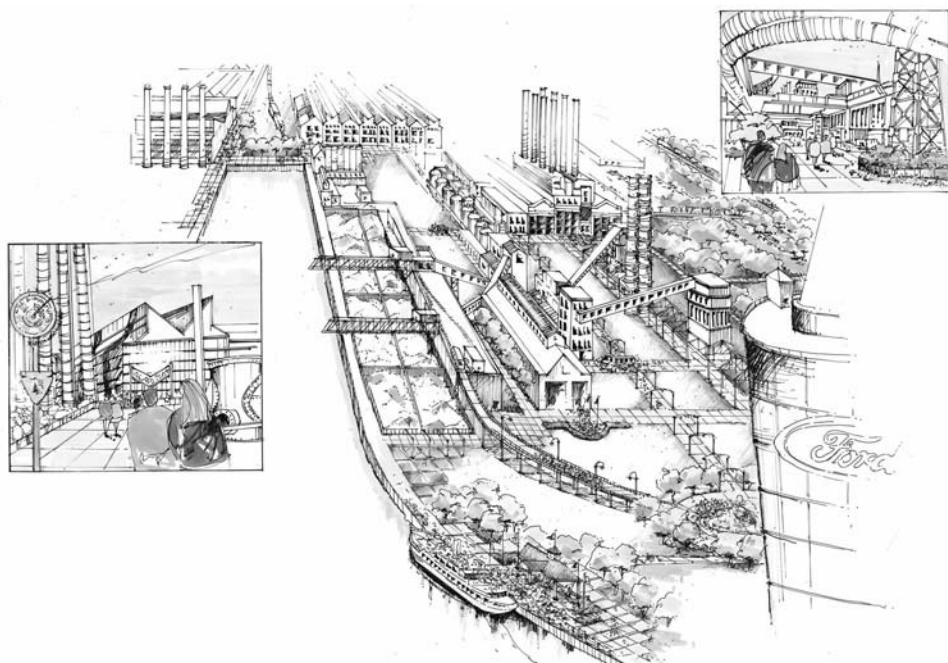


Figure 3. Interpretive potentials at the Rouge, 2001 (MotorCities-ANHA).

and regional land and water linkages, interpretive waysides, and a heritage ranger program.

The GMP also called for a special resource study to evaluate all of the region's resources for NPS involvement, identifying the Rouge as a key focus, given its national significance. However, the GMP suggests that a more innovative designation be explored. A learning center, as identified in a recent National Park System Advisory Board publication,<sup>39</sup> is also a role recommended for the Rouge, given its planned sustainable rebirth and enormous educational value. Community advocacy for the Rouge and its nationally significant resources comes primarily through MotorCities-ANHA, with several board members who work for FMC, THF, and

Wayne County involved with deliberations on the site. To date, MotorCities-ANHA has not requested Congress to authorize NPS to conduct a special resource study. Recently, US/ICOMOS (U.S. Committee for the International Council on Monuments and Sites) staff suggested that MotorCities-ANHA pursue World Heritage Site designation for the auto industry through either FMC's Highland Park or Rouge plants, "before the Germans, French or Italians beat us to it."<sup>40</sup>

**Partnerships in planning and implementation.** FMC has led and borne the cost of the master planning and all new construction and renovation at the Rouge, though Wayne County partnered on the reconstruction of Miller Road. FMC turned to its

close ally THF to create, operate, and manage the interpretive experience at the Rouge. Though separate entities, a Ford family connection remains. Henry Ford founded the Edison Institute (which became THF) in 1929 to house his extensive collection, and the board still includes several family members. THF will operate the entire interpretive experience, and revenues generated through ticket and merchandise sales go back into the institution.

To assist THF and FMC to reduce the Rouge's immense history into a concise story and create the visitor and interpretive experience, THF hired a consultant to lead concept, design, and production. FMC contracted separately with a team of local architects to build the visitor center. Prior to funding the design, an economic consultant was contracted with to conduct a management resources feasibility and operations analysis. The study determined capacity, flow, operation needs, pricing, and target attendance. THF is estimating 125,000–250,000 visitors per year for the FRFT. FMC plans to open the visitor center as part of the corporation's centennial celebration in June 2003, though public tours are not scheduled to begin until the spring of 2004.

### **Homestead Works/Carrie Furnaces**

The Rivers of Steel NHA was designated by Congress in 1996, and is located in a seven-county area in Pittsburgh and southwestern Pennsylvania. Telling the nationally significant story of "Big Steel" in the U.S, the Steel Industry Heritage Corporation

(SIHC) manages Rivers of Steel through a cooperative agreement with NPS. SIHC's mission is to conserve, interpret, promote, and manage the historic, cultural, natural, and recreation resources of steel and related industries in Rivers of Steel and to develop the use of these resources so that they may contribute to the revitalization of the region. Within the NHA boundaries lie several hundred documented 20th-century industrial and labor history resources, perhaps the most significant of which is the Homestead/Carrie site.

**The story and significance of Homestead/Carrie.** The former Homestead Works (Homestead/Carrie) is located in Allegheny County on the banks of the Monongahela River in southwestern Pennsylvania. Homestead/Carrie was the site of some of America's most significant labor history: the "Battle of Homestead" in 1892 and the 50-year non-union period in the steel industry which followed. First established by Andrew Carnegie and later acquired by U.S. Steel Corporation (USX), the operation of the integrated plant was pivotal in the development of the American iron and steel industry from 1892 to 1951, making Pittsburgh the capital of "Big Steel" and influencing steel-making locally, nationally, and internationally. The site was the hub of industrial development and major technological advances within the steel industry, including the "hard driving" method of steel-making and the development of techniques for smelting Mesabi ores.<sup>41</sup> A primary armor-producing facility, Homestead/Carrie and the workers of the Monongahela Valley

produced the steel that helped win World Wars I and II.

Homestead/Carrie is located in and adjacent to some of greater Pittsburgh's most severely depressed communities, places that have been affected by the downsizing of the steel industry and its attendant permanent job losses. Operations at Homestead/Carrie ceased in 1979 and the SIHC has been leading efforts to secure both NHL district status and the establishment of a national historical park since 1990. Since closure, the integrity of the Homestead/Carrie resources has been affected, with its context of abandoned industrial sites along the Monongahela undergoing dramatic redevelopment. Park Corporation recently purchased the Homestead site, demolished the steel mills, and created a major 360-acre mixed-use development called the Waterfront, covering 80% of the former works. The nearby Nine Mile Run/Summerset residential development reclaims a former slag dump, and Frick Park, owned by the city of Pittsburgh, plans expansion into the residential area.

**Plans for re-use and interpretation.** The Rivers of Steel GMP proposes conservation and interpretation of the Homestead/Carrie resources, addressing 35 acres of the 160-acre site. Portions of the Homestead/Carrie site from the 1892–1900 period remain intact, and a number of projects identified in the GMP have been implemented. The Bost Building, former headquarters of the Amalgamated Associated Iron and Steel Workers during the 1892 Homestead lockout and strike, also housed the newspaper

reporters who covered the strike. In 1999, the Bost Building was designated the district's only NHL to date, and has since been renovated to serve as SIHC headquarters, housing archives and exhibits interpreting the building and events of 1892, and providing information on the NHA. SIHC plans to expand the Bost as a welcome center and gateway to the proposed national historical park and the region, and as the launching point for Monongahela River tours.

Carrie furnaces 6 and 7 across the Monongahela also retain integrity (Figure 4). Built in 1906–1907, they are the only remaining pre-World War II blast furnaces in the Pittsburgh district. A docking area is planned at the Carrie site. The Hot Metal Bridge linking the two sites retains basic integrity from 1900–1901 and is currently interpreted from afar. In the future, the bridge, one of six of its type remaining in the world, is envisioned as a multi-modal link in the regional greenway system. The landing site where the battle of 1892 occurred still includes the retaining wall and pump house, currently undergoing renovation for basic visitor amenities. The pump house, where SIHC hopes to interpret the battle and the rest of site, is currently a venue for lectures, with new exhibits planned to open in 2003. It is also a stop on the Rivers of Steel bus tour, and included in a digital driving tour planned for summer of 2003.<sup>42</sup>

Any individual who has visited an operating steel mill knows that it is an extremely visceral and memorable experience. There has been “no heat” at Carrie since 1979, so Rivers of Steel

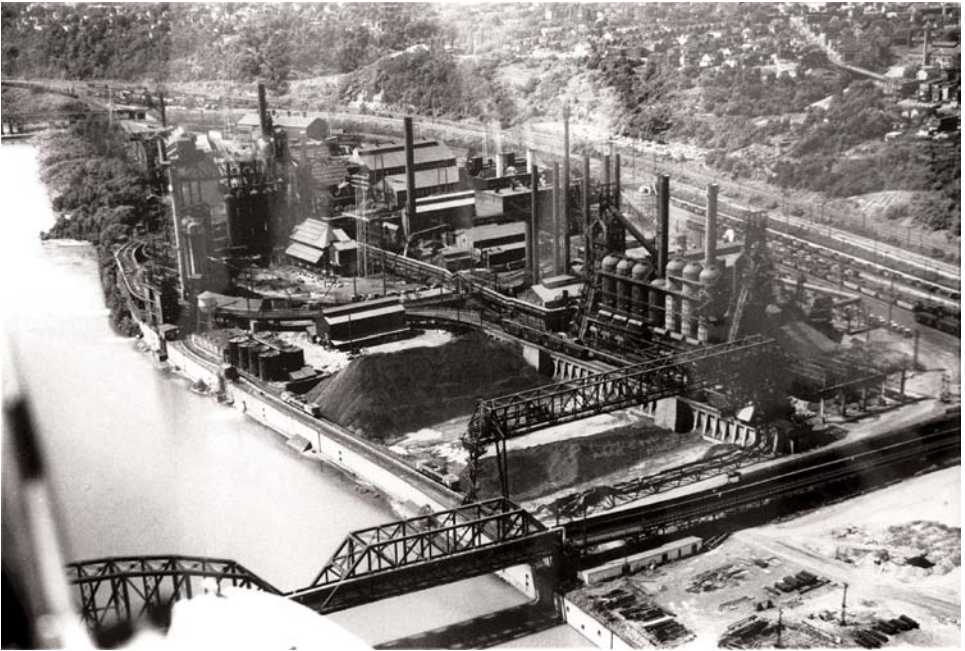


Figure 4. Carrie Furnaces, circa 1965 (SIHC).

has focused on interpreting the landscape and the physical remains of the site. The GMP planners proposed a “virtual reality” film so visitors might feel the “heat and the fury” of steel-making, without putting people in harm’s way. There remains the possibility of offering visitors a separate tour of USX’s nearby Edgar Thompson Works, which are still operating. However, interpretive planning has yet to begin in earnest. Once the Homestead/Carrie park unit is designated, NPS will have to generate another GMP, including an interpretive approach to the site.

**Partnerships in planning and implementation.** SIHC leads implementation efforts with strong local, county, and state support. The Rivers of Steel GMP suggested a special resources study for Homestead/Car-

rie, but SIHC’s route through the application and designation process with NPS has not been smooth. In 1998, SIHC submitted an NHL district nomination for Homestead/Carrie,<sup>43</sup> and in 1999 Congress authorized NPS to conduct a special resources study to determine whether Homestead/Carrie meets NPS criteria for national significance, suitability, and feasibility in order to be designated a unit of the National Park System.

When the special resources study began, SIHC Chief Executive Officer August Carlino was told by tNPS that Homestead/Carrie “will not fit at least one category, and that category will likely be feasibility. Because of the scale of the site and the costs associated with taking it on—it would likely be turned down.”<sup>44</sup> While the NPS special resources study continues, the

designating legislation is going to congressional committee. Carlino remains confident SIHC will gain designation, noting that whatever NPS says or does, Congress is the ultimate determinant in getting an NPS unit. According to Carlino, “If you think merit will win out, you are naïve. You need the political support—not only in Washington, it has to be something the region supports.”<sup>45</sup>

SIHC projects implementation costs at approximately \$100 million. SIHC recently secured commitments from USX and International United Steel Workers of America to lead a capital campaign.<sup>46</sup> Park Corporation has committed to donating the land on the condition that SIHC gains federal government involvement through NPS designation, but has limited access to the site due to liability concerns. The Union Railroad (part of USX) donated the Hot Metal Bridge to SIHC in 2001. SIHC now owns the Bost Building, the pump house, the water tower, and the Hot Metal Bridge. But, according to SIHC staff, the “big fish is still in the pond.”<sup>47</sup>

### Challenges

History demonstrates that conservation and interpretation of the United States’s recent industrial past has been challenging and not wholly successful. The time and resources devoted to date have yielded little in terms of national recognition and public use and enjoyment of these significant resources and stories. I propose three primary challenges to success in conserving our recent industrial past:

- **Appreciation of significance.** U.S. society<sup>48</sup> must recognize that

industrial resources do indeed embody significance. Such resources must first be accepted as intrinsic to American culture—as important to the shaping of the American experience as Plymouth Rock or Gettysburg. But a history that is too close is not always held dear. Attitudes, policies, and programs must change at the federal, state, and local levels to encourage appreciation among our citizens. As the nation’s lead “heritage” agency, NPS should play a leading role in raising awareness and making a credible case for significance. The interest and advocacy of preservation and cultural professionals alone have proven to be not enough. NPS must become a proactive advocate for and steward of our industrial heritage, identifying ways to meaningfully incorporate these resources and stories into the National Park System. Theme study, NHL, and special resources study determinations for industrial and labor heritage should not take a decade or more. NPS feasibility assessments, particularly their costs, seem to be the chief impediment to the agency playing a leadership role, ultimately prompting local political and congressional intervention. Imagine a future proactive NPS approach to three other significant 20th-century industries: aerospace, oil, and computer/web. Such a structured and proactive approach on the part of NPS might limit political initiatives that force the inclusion of sites and resources of questionable significance, further reinforcing NPS’s

role in making such determinations.

- **The nature of industry.** All industry is in a constant state of evolution and technological advancement. Such “living” industries and “living” landscapes will, by their very nature, evolve. As Fred Mueller observes, industrial areas “cannibalize themselves” in the name of progress. The history of industry is the history of technological evolution, and in the productivity cycle, the old is taken away and new is put in place. Often, 20th-century industrial buildings and infrastructure were designed and built with the capacity for evolution, given the enormous investment involved. Fortunately, the ideal conservation and interpretation strategy for industrial resources is to put them into a continuous cycle of use, retaining the opportunity to tell not only the story of how technology originated, but how it continues to evolve. Embracing this evolutionary nature is the next step in embracing our 20th-century industrial heritage. As the two case histories reveal, “freezing” industry and technology at a specific time is not appropriate for large-scale industrial sites, particularly those that remain intrinsic to the economies and cultures of communities. The Homestead/Carrie special resources study addressed this phenomenon, describing site integrity as “commensurate with the ever changing nature of industry.”
- **The culture and missions of NPS, history museums, and corporations.** The capacity to deal with

20th-century industrial re-use and interpretation is not intrinsic to the missions of these major U.S. institutions. As suggested by Randall Cooley, NPS is, by definition, an “iconic” interpretive agency, focusing only on those resources that are icons of the American landscape and experience. If too many similar resources survive to tell a nationally significant story—such as steel mills or auto factories—NPS is inclined to wait to preserve the last example left. NPS’s focus is not on the evolution of resources, but on capturing a resource at a specific period of significance. For industrial resources, this evolution co-exists on one site.<sup>49</sup> NPS creates a catch-22 by arguing a lack of integrity for an evolved industrial site. However, if such sites were fully intact, NPS would likely be even more resistant on issues of feasibility and cost.

History museums focus on the interpretation of artifacts in controlled environments, and are not equipped to address context. Most interpretive approaches employ traditional methods of interpretation—film and video, virtual reality, interpretive panels, bus tours—all of which are sequenced, packaged, and contained experiences. These methods tend to “sanitize” and “prettify” the resource and the story, catering to the mass consumer tastes of a nation accustomed to a Disneyland experience of the urban landscape. All while the authentic resource and experience are just outside the bus or vis-



itor center window.

Many 20th-century industrial resources are owned by global corporations with billions in assets. Unless abandoned, these facilities are still in productive use. Generally, conservation and interpretation are not in the “DNA” of these corporations. Most businesses do not see beyond the next quarter’s financial statements, let alone the ten or twenty years needed for an adaptive re-use project to come to fruition. However, corporations often need to keep resources in productive use as a business strategy, which is also the best conservation strategy. For resources of such scale, strategies for single-purpose use are generally unrealistic, as is transforming all industrial resources into museums. Twenty years ago, a corporation’s first instinct was to abandon the site and put a fence around it, but increasingly, with pressure from municipalities to replace losses in their tax base, corporations have focused on demolition and redevelopment—still posing a challenge to conservationists.

Each of these sectors can and must play critical roles if we are to conserve and interpret our recent industrial heritage. NHAs play an important role in advocating for an ethic of re-use and interpretation within each, bringing all parties to the table, identifying the strengths of each, and allowing the surrounding community to provide the context. NHAs are also an important vehicle for expertise in large-scale

landscape interpretation, but the role and presence of NPS cannot be underestimated. Success in conservation and interpretation is generally evident in NHAs with strong NPS recognition, presence, and technical assistance.

### A Cooperative Way Forward

NPS has a unique opportunity to embrace our recent industrial heritage by partnering with and recognizing the local leadership of NHAs, corporations, and public-sector partners while reinforcing the importance of park units as part of the agency’s “seamless national network.” Partnerships are logical, but to gain legitimacy strong local support must also be coupled with federal recognition. Few communities would mount such long-range investments without the hope of gaining NPS recognition, which remains critical to gaining support, participation, and funding from public and private sectors.

- **Seizing new opportunities and agendas.** The case studies in this paper illustrate various motivations for the conservation of industrial resources beyond education and interpretation: business opportunities, enhancing a corporation’s environmental profile, executives’ interest in history and legacy. In order to succeed in the conservation and interpretation of industrial resources, cultural resource professionals must be innovative—tell the story, find an ally, appropriate an agenda! But there also must be balance. An agenda which focuses only on natural resources can be of

detriment to the cultural. Still, there is a wealth of opportunities to partner with the private sector on cultural resources, while continuing to expand the NPS definition of “partnership.” The corporate community has already proven their interest and willingness to be associated with NPS on environmental issues.<sup>50</sup> NPS and NHAs should explore how these motivations can be transformed into an equally enthusiastic conservation ethic addressing cultural resources.

- **New view of standards and incentives.** The designation and conservation of industrial resources poses a challenge to NPS management standards, preservation procedures, and technologies. NPS evaluation of integrity will likely always fail if the site is in a continuous cycle of use. A more flexible approach is required if the ultimate objective is to conserve resources. All stakeholders must arrive at a reasonable definition of what is required to retain integrity and status. The secretary of the interior’s standards currently stipulate “new use that requires minimal change” and “each property recognized as a physical record of its time.”<sup>51</sup> These standards need to evolve to address industrial scale and conditions, particularly the secretary’s rehabilitation standards, which seem most relevant to industrial conservation.<sup>52</sup> In addition, NPS should take a proactive lead in coordinating among federal agencies, particularly with the EPA, which is often the “first on the

scene” at historic industrial sites and whose environmental mitigation requirements often result in the loss of cultural resources.<sup>53</sup> We need to creatively leverage state-level programs, such as brownfield and obsolete buildings legislation. But perhaps the most important factor in alleviating NPS’s resistance to such large-scale resources is addressing the agency’s lack of financial resources and staff expertise. Congress must provide NPS with adequate funding to support such designations and additions to the National Park System.

- **Innovative approaches for big scale and contested stories.** Our recent industrial heritage presents unique challenges because of the scale of the resources and the inherent conflicts of the stories. We must not be overwhelmed by scale. As these resources were conceived by minds of a previous generation, so can they be reconceived by the minds of this generation. We require viable strategies that focus on innovative approaches and resist “assembled or imagined heritage landscapes,” as Richard Francaviglia has categorized them.<sup>54</sup> Identifying the essence of their inception can inform our reuse strategies. If innovation defined them 100 years ago, then whatever defines innovation today can guide their future use. We must embrace difficult stories, and continue to tell the whole story, finding ways to make them relevant to contemporary society. Still vital to most communities, 20th-century industrial

sites offer rich opportunities for civic engagement in under-served urban areas, connecting NPS to a more diverse constituent base.

I hope this history has established the argument for the significance of recent industrial heritage in the United States and shone a light on the important role that national heritage areas are playing, and the challenges they face, in attempting to conserve and interpret the resources and stories that

compellingly convey this heritage. I close my paper with a call to action. The opportunities are ripe and time is of the essence if we are to address this transcendentally important heritage. The potential benefits are great for current and future generations—if we as a nation can come together to successfully conserve and interpret our recent industrial heritage, using that heritage as a transformative force for change, learning, and growth.

### Endnotes

- 1 Aldo Rossi, *The Architecture of the City*, trans. Diane Ghirardo (Cambridge, Mass.: MIT Press, 1982).
- 2 Constance C. Bodurow, “Rethinking the industrial landscape: The future of the Ford Rouge Complex” (master’s thesis, Massachusetts Institute of Technology, 1991).
- 3 Spiro Kostof, *America by Design* (New York: Oxford University Press, 1987).
- 4 My focus here is on projects that include re-use and interpretation. There are hundreds of projects in Europe and North America that have a more conventional approach to re-use, but do not attempt to leverage embedded information value or educational opportunities. While there are examples across the U.S. of the successful adaptive re-use of 19th-century mill and warehouse buildings for residential, loft, commercial, and retail space, but only a few examples of large-scale 20th-century industrial sites have been adaptively re-used through private-sector initiative and public-sector incentives. Higher-profile examples include the Monterey Aquarium (Monterey, California; a former canning factory), Stroh RiverPlace mixed use development (Detroit; the former Parke Davis Laboratories—though the complex lost its NHL designation because of adaptive re-use), and the Briggs–Courtyard by Marriott hotel (Omaha, Nebraska; former warehouses).
- 5 At <http://whc.unesco.org/sites/industrial.htm>.
- 6 Jerome Hugron, *Industrial Heritage in Europe: Preservation and Revitalization Initiatives* (Lyon, France: Université de Bourgogne, 2002).
- 7 Sources of information for European projects: Bodurow, “Rethinking the industrial landscape”; Hugron, *Industrial Heritage in Europe*.
- 8 Hugron, *Industrial Heritage in Europe*.
- 9 In the NHL system, there are currently 12 theme categories potentially relating to industrial resources. NHL research, NPS Washington Cultural Resources Office staff.
- 10 Author’s research of current National Park System. I have excluded sites such as Los Alamos National Laboratories, which deal primarily with 20th-century military history.
- 11 This was the experience of Rivers of Steel NHA in attempting to gain designation for the Homestead/Carrie site; see below.
- 12 Historic American Engineering Record informational brochure, undated.
- 13 At <http://www.nps.gov/parks>.
- 14 Though not an NPS initiative, Bethlehem Steel in Bethlehem, Pennsylvania, merits inclusion as the largest brownfield project the U.S. Environmental Protection Agency (EPA) has undertaken with private industry, the future site of a new National Museum of Industrial History (NMIH), and a unique partnership approach led by high-level Bethlehem Steel executives. Located on the Lehigh River, the plant served from 1904–2002 as the headquarters of the Bethlehem Steel Corporation, and is also a key site in the Delaware and Lehigh National Heritage Corridor (DLNHC). Steel-making ceased in 1995,

and over the last 10–15 years, a master plan was developed for the re-use and interpretation of the 160-acre site as a mixed-use complex. The plan incorporates three-fourths of the existing historic structures, effectively preserving the historic core of operation. The most significant resources on site are the five furnaces, illustrating over 50 years in steel-making technology. The proposed program includes museum and interpretive uses, community recreation, and commercial areas. In 1997, a memorandum of understanding was signed with the Smithsonian Institution for a new affiliate museum, the NMIH, to be located in the plant's No. 2 machine shop. Planning and implementation has been managed by the nonprofit BethWorks, working in conjunction with the Delaware County Development Corporation. Unfortunately, plans have recently stalled due to Bethlehem Steel's recent bankruptcy and purchase by a Cleveland-based corporation, though the NMIH project is expected to proceed. Interview with C. Allen Sachse, executive director, DLNHC.

- 15 Interview with Robie Lange, National Historic Landmarks Survey, April 9, 2003; National Park Service, *Labor History Theme Study: Phase III* (Denver: NPS Denver Service Center, 1997). Phase I of the labor history theme study was a reconnaissance survey by qualified scholars of labor history. During Phase II, historians at the Newberry Library in Chicago, under contract to the NPS, identified a list of 52 sites, including the Schloss Blast Furnaces in Birmingham, Alabama (now owned and operated by the city of Birmingham and open to the public as a museum of industry), the Ford Rouge Complex, and the Butte–Anaconda Mining and Smelting Complex in Montana. The initial study did lead to some NHL designations. Phase III was initiated in 1995 at the George Meany Conference, reducing the list to 11 sites. NPS, now in phase IV, has revised the study and further reduced the list of eligible sites. Currently under internal review, the study may lead to a multiple-property designation.
- 16 See the papers in this issue by Eugster and Barrett for discussions on the origins and evolution of the heritage area movement in the United States.
- 17 To some extent, other NHAs deal with 20th-century industrial heritage. Silos and Smokestacks NHA deals with agricultural themes and includes the John Deere Works, and Augusta Canal NHA deals with textile production and power generation. However, neither deals with industrial re-use and interpretation at the scale of the two case studies selected for this paper.
- 18 The factory gets its name from the river on which it was built. La Riviere Rouge (Red River) was named by the region's French settlers in the early 1700s for its rich red clay soil and, therefore, its distinctive color.
- 19 Bodurow, "Rethinking the industrial landscape."
- 20 Allan Nevins and Frank Ernest Hill, *Expansion and Challenge* (New York: Charles Scribner's Sons, 1957), p. 687.
- 21 Ralph J. Christian, Rouge NHL nomination, May 1977.
- 22 Bodurow, "Rethinking the industrial landscape," p. 189.
- 23 *Detroit News*, May 4, 1999.
- 24 McDonough is known as the "green dean" for his innovative sustainable design practice and status as former dean of the University of Virginia School of Architecture.
- 25 Ford Centennial Operations/Rouge Communications 6-02.
- 26 Interview with Patricia Mooradian, THF, March 17, 2003.
- 27 Ford Centennial Operations/Rouge Communications 6-02.
- 28 Mooradian interview.
- 29 Ibid.
- 30 Interview with Timothy O'Brien, FMC, February 25, 2002.
- 31 National Park Service, *Labor History Theme Study: Phase III*.
- 32 O'Brien interview.
- 33 Ibid.
- 34 The power house was damaged in the 1999 explosion and its landmark stacks and precipitators were recently removed because of safety and environmental concerns.
- 35 Albert Kahn's first building on site was originally known as the B-Building because it was built to produce Eagle boats for the U.S. Navy in World War I.
- 36 O'Brien interview.
- 37 *MotorCities–Automobile National Heritage Area General Management Plan* (N.p., November 2001), pp.

233-235.

38 Ibid.

39 National Park System Advisory Board, *Rethinking the National Parks in the 21st Century* (Washington, D.C.: National Geographic Society, 2001).

40 Conversation with Gustavo Araoz, executive director, US/ICOMOS, October 11, 2003.

41 National Park Service, *Battle of Homestead and Carrie Furnaces 6 and 7 Special Resources Study* (Boston: NPS Northeast Region, August 2002).

42 Interview with Ron Baraff, SIHC staff historian, April 11, 2003.

43 The NHL district nomination for Homestead/Carrie was drafted in 1998 by Michael Bennett, research historian at the University of Vermont. According to SIHC staff, NPS has repeatedly reviewed and returned the document, which is now in its third iteration. The NPS Washington staff has expressed concern about integrity of the site, and, absent a national context study, has instructed Bennett and SIHC to complete a comparative analysis of blast furnaces in the area, particularly now that Bethlehem has expressed intent to acquire NHL status. Bennett's latest conclusions focus on the fact that no other extant furnaces are (1) tied to Andrew Carnegie and (2) linked to Pittsburgh district. The newly revised NHL is still in the process of review, but is moving forward.

44 Interview with August R. Carlino, chief executive officer, SIHC, April 13, 2003.

45 Ibid.

46 Ibid. Local foundations made it clear to SIHC that without visible industry support, it would be impossible for them to raise money for the project.

47 Baraff interview.

48 Citizens, private property owners, government servants.

49 Interview with Randall Cooley, executive director, Southwest Pennsylvania Heritage Preservation Commission, March 28, 2003.

50 FMC partnership with NPS on the Glacier National Park "red buses" alternative fuel conversion project, and THINK! electric vehicle donations throughout the National Park System.

51 *Secretary of the Interior's Standards for the Treatment of Historic Properties*, 1995.

52 FMC chose not to use historic tax credits at the Rouge, believing that the secretary's standards would hold them up for years, but then still decided to painstakingly recreate the single-pane glass windows of Kahn's historic Glass Plant.

53 An example of this can be found at the Rouge, where environmental remediation is resulting in the demolition of the historic coke ovens.

54 Alanen and Melnick, 2000.

**Constance C. Bodurow**, 2900 East Jefferson Avenue, A-200, Detroit, Michigan 48207; [cbodurow@earthlink.net](mailto:cbodurow@earthlink.net)

