Connellsville Area Coke Oven Assessment

The Uniondale / Reid Brothers Coke Works, Dunbar, PA

Stabilization, Restoration and Interpretive Opportunities

March 2014

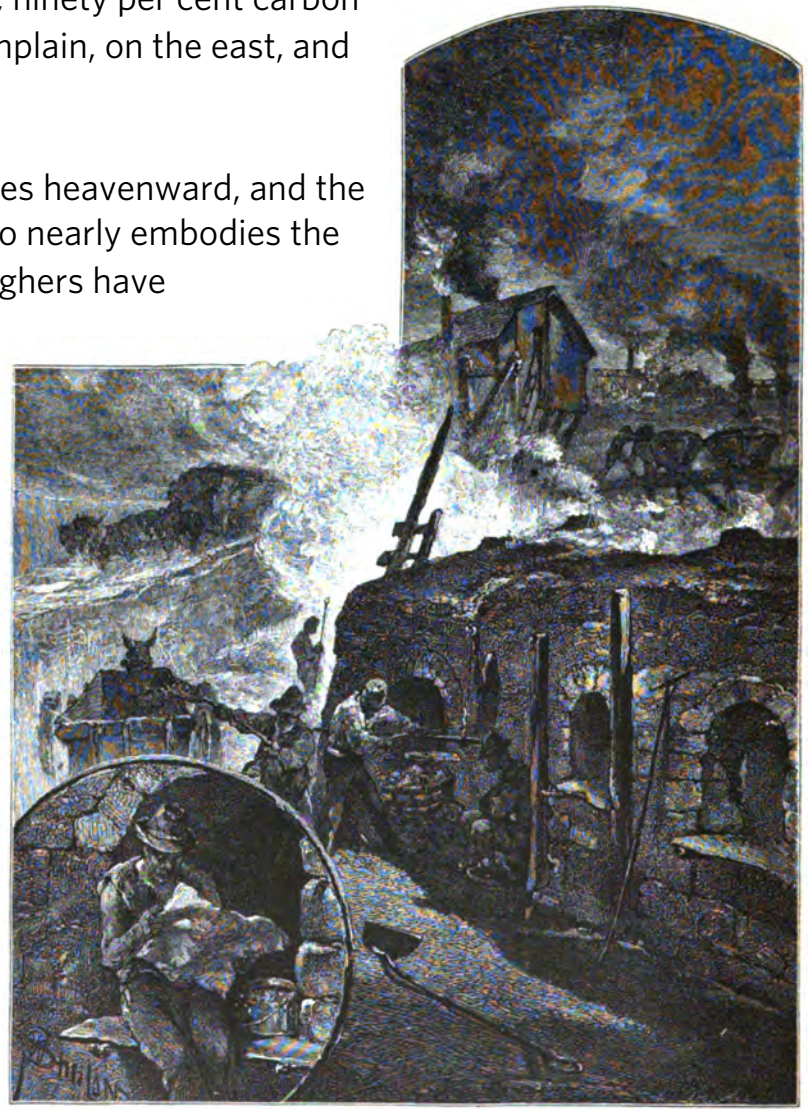
PFAFFMANN + ASSOCIATES

223 Fourth Avenue
Suite 800
Pittsburgh, PA 15222
412.471.2470
www.pfaffmann.com

"To the south[east] of Pittsburgh there lie boundless beds of a peculiar soft coal, in strata eleven feet thick, easily mined, and generally easy of access. This coal, slowly baked in great ovens, is the Connellsville coke of commerce, ninety per cent carbon —a fuel that finds its way to the blast furnaces of Lake Champlain, on the east, and to the smelting furnaces of Utah and Colorado on the west.

"Five thousand coke ovens to-day send their pernicious fumes heavenward, and the nocturnal appearance of a range of coke ovens in full blast so nearly embodies the orthodox idea of Satanic scenery that unregenerate Pittsburghers have comparatively few surprises in store after this life."

—*Harper's New Monthly Magazine*, December 1880



Executive Summary

Purpose

This report contains recommendations for developing a longterm strategy for stabilizing, restoring and interpreting coke ovens at the former Uniondale / Reid Brothers Coke Works in Dunbar Borough, Pennsylvania. Now owned by the Borough, the remains of the 76 beehive coke ovens are advantageously located along the Sheepskin Trail, the first phase of a hiking/biking trail that connects the Borough to the Great Allegheny Passage (just two miles away). This report, completed by Pfaffmann + Associates of Pittsburgh in 2013-14, provides an initial structural and interpretive assessment of the ovens and a framework to plan for the future care of this historic resource and community asset.

A Significant Resource

The Uniondale / Reid Brothers site is historically significant as an example of an early, innovative and independent coke operation. The remaining ovens possess integrity that helps convey an important historic shift from small-scale, scattered coke production to larger, concentrated commercial coke works. The first 40 of 76 beehive ovens at Uniondale were completed in 1869 under the leadership of Thomas W. Watt, at a time when the coke industry was in relative infancy. In 1870, for example, the number of coke works in the entire Connellsville Region numbered only around 20, and consisted of a mere 550 or so individual ovens. Prior to construction of the Uniondale works, coke operations tended to be small, consisting typically of a dozen or so ovens. The site further conveys the operations of a coke production facility in the era before Henry Clay Frick dominated the industry and became "The Coke King," beginning around 1880.

Successful Stewardship

The steering committee deserves recognition for its successful stewardship of a diverse collection of historic, cultural and recreational resources throughout Southwestern Pennsylvania—including trails, heritage areas, former industrial sites and a replica beehive coke oven at the Dunbar Historical Society. The collaboration exhibited on this project demonstrates capacity for successfully accomplishing future projects.

Key Recommendations

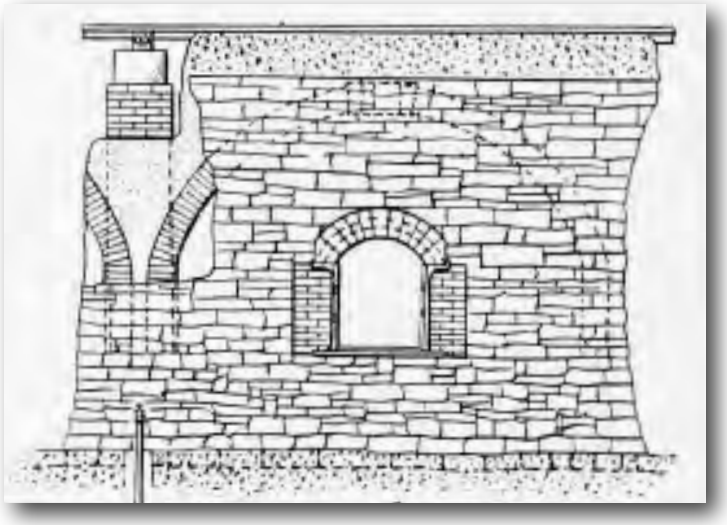
The design team identified four ovens that are good candidates for stabilization, restoration and interpretation. They are situated near one another in the center of a bank of ovens that date from 1869-74. All four retain their front faces and intact beehive forms, including intact crowns and trunnel openings (the circular top holes through which raw coal was loaded into the ovens).

To ensure that the Uniondale / Reid Brothers Coke Works is preserved and interpreted for generations to come—and is a successful tourist destination that offers economic benefit to the community—significant strategic planning and development work should be undertaken.

The following planning initiatives are recommended in an order that makes sense from a chronological and fundraising perspective:

1. Continue with the effort to **determine eligibility for listing in the National Register** of Historic Places. An initial draft of a Historic Resources Survey Form has been reviewed by PHMC.
2. **Conduct a site-wide structural needs assessment** that examines the condition of each of the 76 ovens in order to identify, prioritize and provide cost estimates for stabilization and restoration (or in some cases—no activity at all).
3. **Develop a master plan to establish long-term goals** and implementation strategies for the site, which should include articulation of a philosophy to guide the degree of stabilization or restoration across the site. This plan should also define a management structure along with roles and responsibilities, and include a market study to guide the site's interpretive success and fund-raising priorities. The management entity should invite outside stakeholders to participate in aspects of this process.
4. **Create a site management and interpretive master plan** to provide specific direction for future actions and establish best practices for the long-term preservation and interpretation of the Uniondale site.

Successful completion and implementation of these steps will help stabilize current conditions and provide a robust and practical strategic vision to guide longterm preservation and interpretation.



Front face of a typical Connellsville area coke oven *(Connellsville Coke,* H.C. Frick Coke Company, Pittsburgh, PA).

Table of Contents

Acknowledgments

Funding for this report was provided in part by a grant from the Community Foundation of Fayette County.

cffc Community Foundation of Fayette County, PA

The grant was managed by the Pennsylvania Environmental Council.

pennsylvania environmental council

Groups participating on the steering committee included:

- Dunbar Borough Council
- Dunbar Historical Society
- Coal & Coke Heritage Center , Penn State University, Fayette
- Connellsville Historical Society
- Fayette County Cultural Trust
- National Road Heritage Corridor
- Pennsylvania Historical and Museum Commission (PHMC)
- Preservation Pennsylvania
- Redevelopment Authority of the County of Fayette
- Regional Trail Corporation and Allegheny Trail Alliance
- Rivers of Steel National Heritage Area
- Student Conservation Association
- Sustainable Connellsville
- Trail Town Program

Appreciation is extended to the steering committee for its guidance and editorial contributions and to the following individuals:

- Brad Clemenson, Pennsylvania Environmental Council

- Mike Bell, Dunbar Historical Society
- Linda Boxx, Allegheny Trail Alliance
- Elaine DeFrank, Oral Historian, Coal & Coke Heritage Center
- Gene Gallo, Sustainable Connellsville
- Norm Gordon, Dunbar Borough President, and Dunbar Historical Society
- Erin Hammerstedt, Preservation Pennsylvania
- Donna Holdorf, Sheepskin Trail Manager/National Road Heritage Corridor
- Evelyn Hovanec, former Executive Director, Coal & Coke Heritage Center
- Donna Myers, Dunbar Historical Society
- Tammy Nedrow, Dunbar Borough Secretary
- Will Prince, Trail Town Program
- Cassandra Vivian, Mount Pleasant Cultural Trust

Special thanks is extended to Sheri Sanzone at Bluegreen, a planning and design firm in Aspen, for information on the Redstone Coke Works; and to Chad Crumrine, Trail Town Outreach Corps, for his collaborative efforts in developing the Historic Resource Survey Form (HRSF)—a PHMC document for determining historic significance.

Design Team

PFAFFMANN + ASSOCIATES

Rob Pfaffmann, AIA, AICP, Principal-in-charge

Jeff Slack, AICP, Project Manager

Jimmy DeCecco, AIA, RA

Schneider Engineering, LLC

John Schneider, PE, Principal

Project Scope

Pfaffmann + Associates was selected in August 2013 to identify a group of remaining coke ovens in the historic Connellsville Coke Region that could be stabilized, restored and interpreted at a relatively low and, therefore, attainable cost—and to do this at a location that already has substantial visitor traffic.

The steering committee felt that it was important to select a site to preserve and interpret Southwestern Pennsylvania's history of coal and coke that was located along the Great Allegheny Passage (GAP)—or a short distance off on a connected trail. The GAP attracts 800,000 visitors per year, generating over $50 million in spending in Trail Towns. Interpreting the coke story along the GAP offers the advantages of exposing significant numbers of people to this history and building on the success of the GAP as an established tourism destination, thus increasing economic benefits to the community.

Four ovens were ultimately selected. The are located at the heart of a bank of 60 beehive ovens at the former Uniondale / Reid Brothers Coke Works. Constructed ca. 1869-74, the ovens are located just off the Sheepskin Trail—the two-mile long first phase of a hiking/biking trail that connects the Borough of Dunbar with with GAP.

While the work of the design team involved considerable research, structural investigation, cultural resource management planning and interpretive assessment, the project was limited to identification of ovens and initial structural and interpretive assessments. Future phases will produce a structural assessment, site master plan and interpretive plan that are more comprehensive in nature.




Historic Overview

Significance of the Connellsville Coke Region

The Pittsburgh Coal Seam was the most valuable mineral resource in United States history. Its value was more than the value of the Comstock Load or California Gold Rush. Pittsburgh became the world leader in steel production and built the economic, industrial and military might that won world wars, in part because of its proximity to vast quantities of coal with excellent coking qualities (coal becomes coke in a carefully controlled burning process that converts it to nearly pure carbon, which burns at the higher temperatures needed for steelmaking). The Pittsburgh Coal Seam lies under what became know as the Connellsville Coke Region and produced many prosperous communities. The history of Southwestern Pennsylvania, Pittsburgh and, indeed, the nation, is simply incomplete without interpreting the coke history.*

The Connellsville Region's beehive coke ovens propelled Henry Clay Frick to leadership of the American steel industry. Frick entered the coke industry in the 1870s, and within a decade was shipping coke as far as Salt Lake City, Utah, and Syracuse, New York.

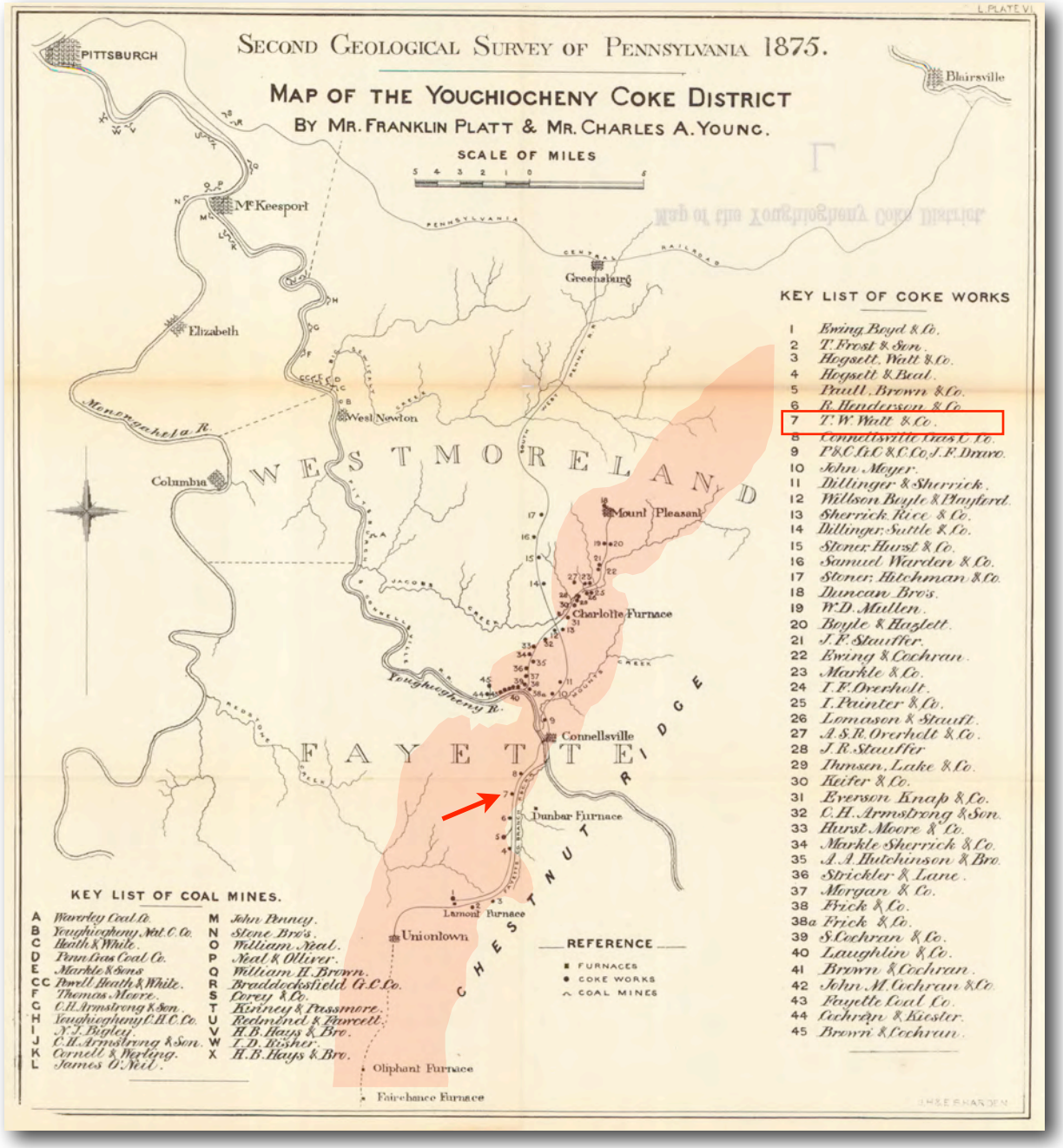
By the time it produced this lithograph to advertise its production of Connellsville coke, the H. C. Frick Company, with 5,000 ovens and production capacity of 8,750 tons a day, was already the leading producer of coke in western Pennsylvania (ExplorePAhistory.com).

"Genuine Connellsville Coke," H. C. Frick Coke Company lithograph, circa 1880 (Library of Congress).

* J. Scott Roberts, former assistant secretary, Pennsylvania Department of Environmental Protection, personal communication.

"At its peak in 1913, the Connellsville district's 38,000 ovens provided fully half the entire nation's supply of metallurgical coke."

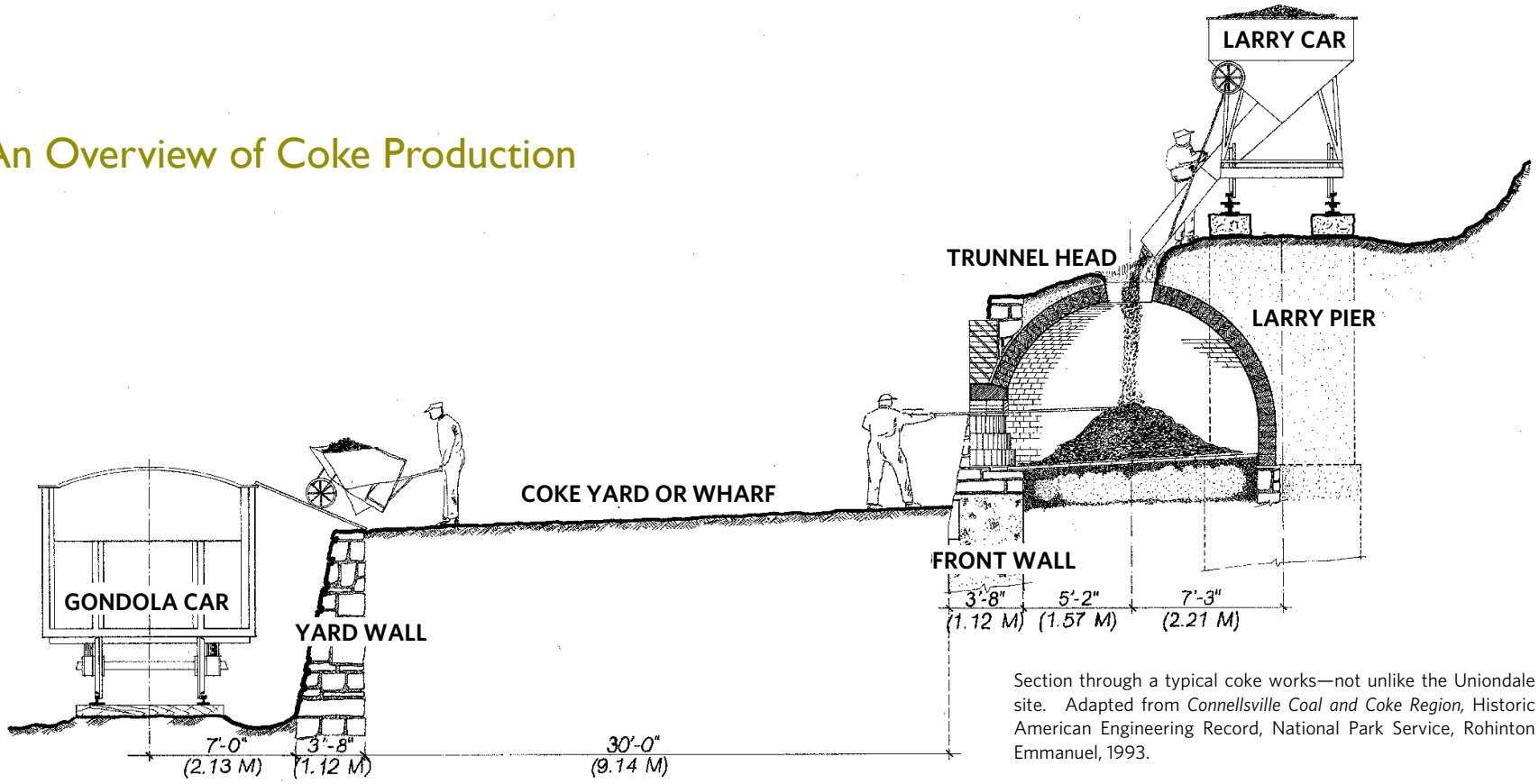
ExplorePAhistory.com, *Coke Ovens Historical Marker, "Behind the Marker."*



The shaded area shows the Connellsville Coal Seam superimposed over an 1875 map. Pittsburgh is shown in the upper left corner. The arrow points to the 1869 T.W. Watt Coke Works (predecessor of the Uniondale / Reid Brothers facility) outside of Dunbar.

Franklin Platt & Charles A. Young, "Map of the Youghiogheny Coke District," Plate VI, *Second Geological Survey of Pennsylvania,* vol. K, 1875.

An Overview of Coke Production



Section through a typical coke works—not unlike the Uniondale site. Adapted from *Connellsville Coal and Coke Region,* Historic American Engineering Record, National Park Service, Rohinton Emmanuel, 1993.

Coke is the solid fuel, consisting chiefly of carbon, that is left behind when bituminous coal is distilled in the absence of air in an oven in order to drive off impurities. Nearly 90 percent of the coke produced from coal each year is used by the iron and steel industry to melt and reduce iron ore.

Coke production at Uniondale would have begun with pulverized, bituminous coal being hauled to the site on larry cars. A worker, known as a charger, then fed a batch, or charge, of coal into the beehive oven (named for its hemispherical shape) through the trunnel head at the top.

Next, a leveler flattened and evened the charge with a tool resembling a large, toothless rake before a mason partially sealed the front door with firebrick, leaving a gap at the top for draft.

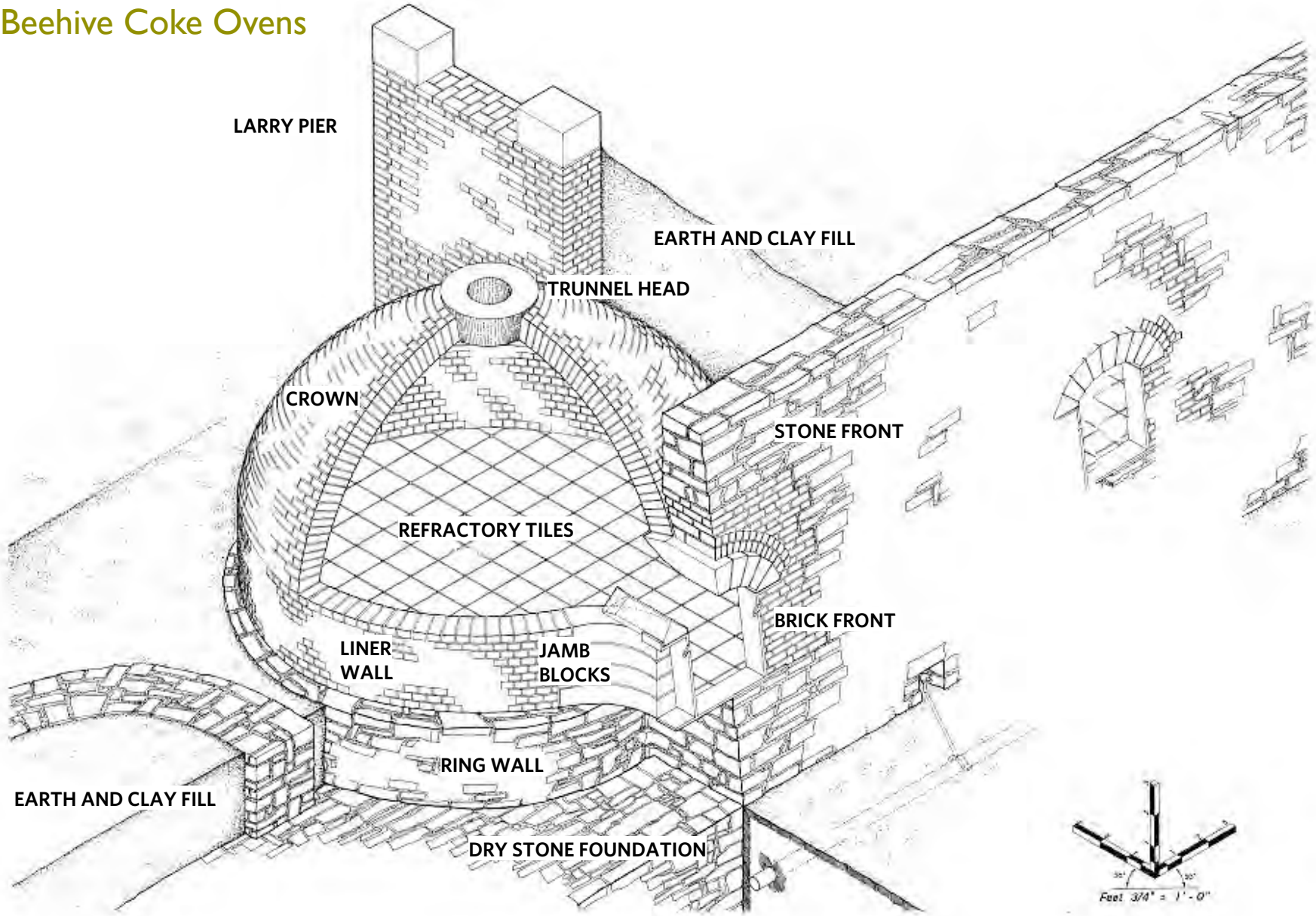
An oven attendant regulated the small opening. The burning time varied from 36 to 72 hours, depending upon the size of the charge and the oven temperature.

The gases generated by the intense heat of the ovens ignited and burned slowly downward, lighting up the sky at night and emitting the pungent smell of rotten eggs. Once the controlled burning was complete, the quencher would open the door and spray the coke with water to gradually cool it. The puller then used a slash bar to break up the coke and a beaver (or T-shaped rod) to draw it out through the door onto the wharf.

Once cooled, workers loaded the drawn coke into wheelbarrows or wagons, and loaded it into railroad cars to be transported to an iron melting furnace.

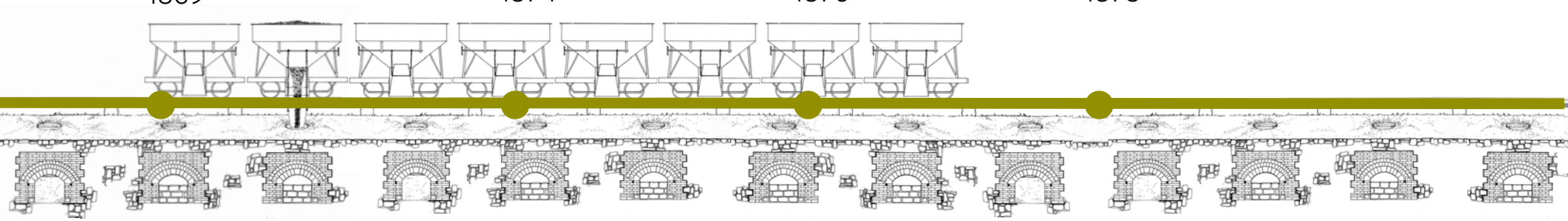
Adapted from Raymond A. Washlaski, "The Manufacture of Coke."
http://patheoldminer.rootsweb.ancestry.com.

Beehive Coke Ovens



Adapted from *Connellsville Coal and Coke Region,* Historic American Engineering Record, National Park Service, Christopher H. Marston and Elizabeth Fairbanks, 1993.

Timeline: Uniondale / Reid Brothers Coke Works



1869

Watt, Taylor & Company construct the first forty beehive ovens at Uniondale outside of Dunbar.

1874

By 1874, twenty additional ovens are built.

The company becomes Watt, Byers & Co. and then Thomas W. Watt & Co.

1876

The Southwest Pennsylvania Railroad constructs a line parallel to the existing Fayette Branch of the Baltimore & Ohio Railroad. Uniondale has access to both.

1878

James M. Reid purchases the interests of Thomas W. Watt & Company and operates Uniondale as Reid Brothers.

Sixteen additional ovens are built.

A boiler explosion kills six workers.

View showing a portion of the expanded Atlas Works in 1900. The Uniondale / Reid Brothers site is outside the frame at the upper left.

While historic views of the Uniondale site have not been discovered, this birds eye view provides a good sense of the resources that would likely have been found there, including a mine opening on the hillside, a coal tipple, and coke ovens adjacent to a a rail line (though Uniondale had beehive bank ovens, not the block ovens shown here).

"Dunbar, Fayette County, Pennsylvania." Morrisville, Pa., T. M. Fowler & James B. Moyer, 1900 (Library of Congress).

1886

A mine explosion kills five workers.

1899

Reid sells Uniondale to the Cambria Steel Company.

Coal at the Uniondale mine is exhausted; coal is soon imported from the nearby Mahoning mine.

1900

Cambria Steel combines Uniondale with the adjacent coke works of Anchor, Atlas, Great Bluff and Mahoning—collectively naming the facility the Atlas Works.

1910

Cambria Steel abandons the Atlas Works.

Documentation provided in part by Chad Crumrine; Drawings adapted from *Connellsville Coal and Coke Region,* Historic American Engineering Record, National Park Service, Rohinton Emmanuel, 1993.




Assessment

Site Selection

When letters of interest were first solicited for the project, the steering committee envisioned that the selected design team would help identify a study site from two or three options along the Great Allegheny Passage in the Dunbar area. Surveys done for America's Industrial Heritage Project provided basic information on remaining historic coke-related resources in the region. These documents identified some sites where ovens remain in the context of a whole village of houses. While these sites have more historical resources than sites containing only ovens, several issues ultimately made them less suitable for this project. For instance, the village of Shoaf in Fayette County is probably the most significant, and the Fort Hill Coke Works near Adelaide offered a compelling opportunity to interpret 186 ovens built by W.J. Rainey—the biggest competitor to industrialist Henry Clay Frick—but acquisition, preservation and interpretation would have been significantly more expensive and/or complex than the current resources would have allowed.

As a result, by the time Pfaffmann + Associates was selected to manage the project, the steering committee had eliminated options and selected the former Uniondale / Reid Brothers site near Dunbar as the study site. While the site was not situated in an area that currently attracts a great number of visitors, it offered a number of important opportunities, including the following:

- The 76 beehive ovens remaining on the site possess significance, representing the early years of the region's coke industry—the first ovens having been built in 1869.
- The ovens remain reasonably intact, possessing what historic preservationists call "integrity," or the ability to convey the historic significance of the site.
- The ovens are located within two miles of the GAP on an established trail—the first section of the Sheepskin trail opened in 2008, connecting the GAP to the center of Dunbar Borough.
- The Dunbar Historical Society had recently constructed a historically accurate replication of a beehive coke oven in the borough and expressed interest in preserving historic ovens in situ nearby.

A section of the Sheepskin Trail between the Uniondale coke oven site and Dunbar Borough.

The Uniondale ovens (shown in red) are located north of Dunbar along the Sheepskin Trail (green). The replica beehive oven lies about a half-mile to the south in the center of Dunbar (Pennsylvania Department of Environmental Protection).

Historic replication of a beehive coke oven created by the Dunbar Historical Society and dedicated in 2010.

Oven Selection

Initial Assessment

With the Uniondale site selected, the mission for the design team became one of selecting which of the 76 ovens on site offered the best opportunities for stabilization, restoration and interpretation.

On October 7, 2013, the steering committee showed design team members Rob Pfaffmann, Jeff Slack and structural engineer John Schneider a group ovens near the point where the Sheepskin Trail crosses Dunbar Creek. The team climbed approximately 20-25 feet up a steep hillside above the floodplain and assessed the remains of approximately 16 contiguous ovens. While not ideal, three adjacent ovens in the center of the group were deemed to be potential candidates. Though none retained their brick/stone front walls, each retained more than half of its brick crown and the trees trunks growing upward from the surrounding earth and clay fill were generally smaller in diameter than at surrounding ovens.

Unconvinced that this group offered the best interpretive opportunity—due to the hillside and deteriorated condition—the design team waited for leaves to drop from the trees and conducted another site visit on December 3. Jeff Slack was joined by Chad Crumrine and Dunbar Historical Society board member Mike Bell to explore all ovens on the Uniondale site.

In preparation, Pfaffmann + Associates had scaled, aligned and printed a series of images of the site, including current and historic aerial photos, current and historic topographical maps, and historic maps of Dunbar and the Connellsville Coke field, including a 1917 Dunbar Borough map and an 1893 Henry Clay Frick map. The goal was to assess and count ovens and locate them on a preliminary site plan.

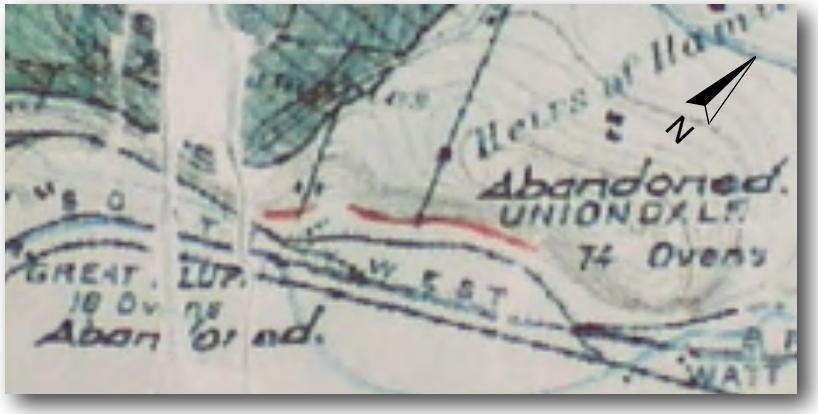
The bank of 16 coke ovens from 1878 are located half way up the hill at the tree line (Chad Crumrine).

The steering committee assembled at the base of the hill after the October assessment.

Ovens with Easier Access and Greater Integrity

The December exploration of the complete site revealed that Uniondale consisted of two groupings of ovens:

1. The group of approximately 16 ovens closest to Dunbar that had been investigated in October. Subsequent historical research into the development of the site suggests that this group was the last to be constructed. Seeking to expand operations, new owner James M. Reid built 16 ovens in 1878, even though the available land was more difficult to reach, being elevated significantly above the edge of the floodplain where the first 60 ovens had been constructed.
2. A second group of approximately 60 ovens to the northeast, located at much more accessible heights, situated roughly at the same grade as the Sheepskin Trail or just a few feet above. These contain the earliest ovens—some dating to 1869.*



The 1893 H.C. Frick Coke Company map appears to confirm two groupings of ovens at Uniondale (in red), as witnessed by the December site visit (Dunbar Historical Society).

Recommended Ovens for Future Planning and Interpretation

While the integrity of the 60 ovens varies, this second grouping contains four ovens that are good candidates for stabilization, restoration and interpretation. Three of the four ovens are adjacent to one another and the fourth stands alone a few dozen feet to the southwest. All four retain their front faces and intact beehive forms (i.e., intact crowns and trunnel openings). Mike Bell indicated that the three adjacent ovens have received some degree of maintenance over the years by a local volunteer interested in their preservation. None of the ovens in the group of 16 retain this degree of integrity.

*While historic documents typically refer to 74 or 76 ovens at Uniondale, the December count (performed twice) suggests the presence of 78 ovens. However, since the December investigation was cursory, the number 76 is being used in this report.

An Interpretive Design Framework for Uniondale

As part of the October site visit, the design team conducted a charette with the steering committee to develop an interpretive design framework. Key outcomes from the discussion include the following:

Overview of Project Goals

- Provide a significantly compelling interpretive opportunity at the remains of the circa 1869 Uniondale Coke Works.
- Attract visitors off the Great Allegheny Passage and into Dunbar by using the Uniondale site to preview Dunbar for visitors (i.e., to encourage trail users to continue into the Borough to the replication of the coke oven and other opportunities/amenities).

Guidelines

- Develop a truly unique attraction that is clearly distinguished from surrounding interpretive sites in order to successfully attract visitors (i.e., be different—don't compete).
- Don't reinvent what already exists. Rather than focus on restoration of an oven at Uniondale, perhaps focus on stabilization of what remains. Engage visitors, then encourage them to see the already reconstructed oven in the Borough and the resources of the Historical Society).

Interpretive Opportunities

- Interpret the history of the immediate site, but also the concentric circles that tell a larger story: site, borough, region, national coal/coke significance.
- At Uniondale, tell the story at a distance (from a vantage point, such as a trail); in the Borough, tell the story up close (using the reconstructed beehive oven and the collections of the Historical Society).
- Consider creative ways to interpret and to incorporate public art.
- Consider ways to put a face to history—tell the story of the people who worked the site: charger, leveler, quencher, etc. along with the role of women.

Related Opportunities

- Consider complementary uses at the site, such as a comfort station, campsites, picnic area, etc.

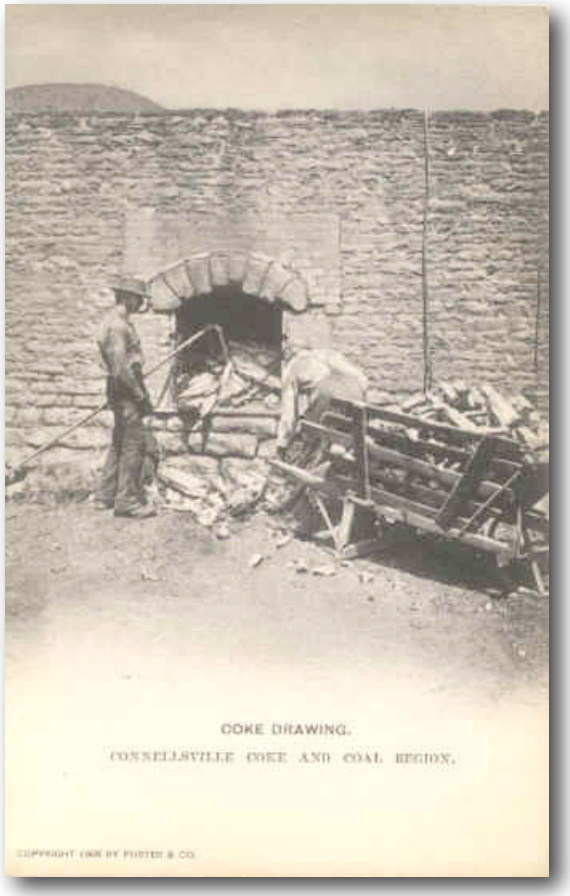
Audience

- Plan for a variety of user types who will frequent the site, including bikers and hikers (both local and GAP users), but also students on school field trips.
- Consider future vehicular access to the site.

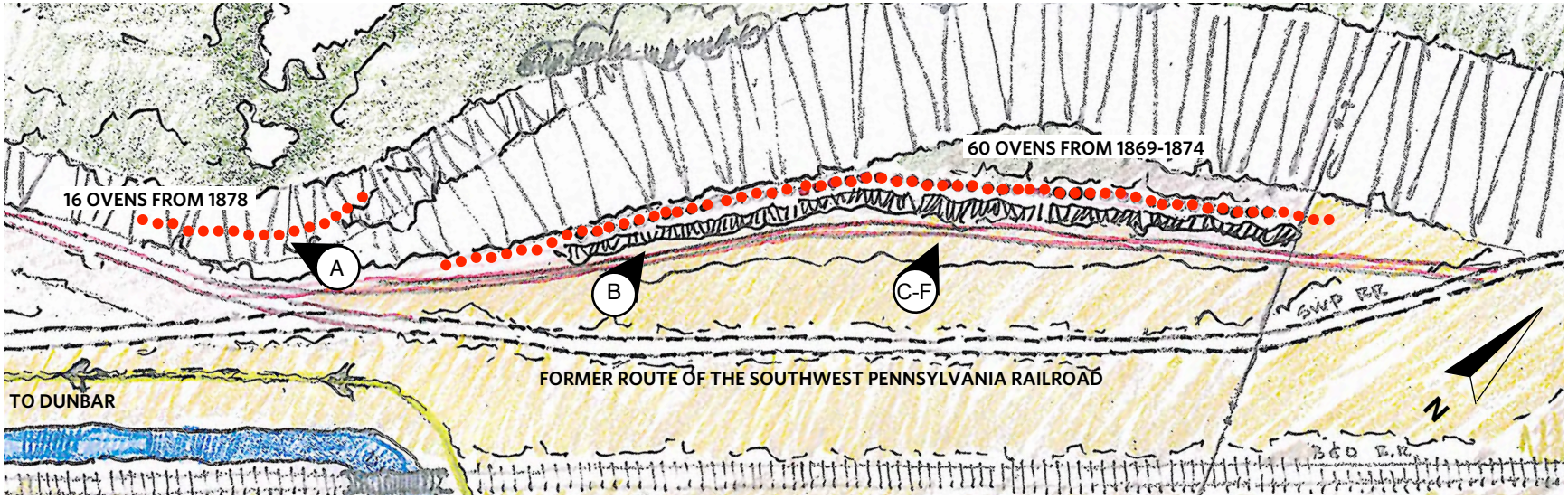
Maintenance

- Keep plans as maintenance free as possible.
- Keep plans implementable and affordable.
- Develop a phased plan where interpretive elements can be added over time as funds are raised.

Quenchers and pullers are among the host of people whose roles in the coke industry offer interpretive opportunities ("Coke Drawing: Connellsville Coke and Coal Region," Porter and Co., 1906, historic post card).



Physical Conditions Overview



Preliminary mark-up of Pfaffmann + Associates' site plan using information developed at the December site investigation.

(A) Typical overgrown and deteriorated condition at the bank of 16 ovens (Chad Crumrine).

(B) Typical condition of most of the bank of 60 ovens, where 50 percent or more of the crown remains on each oven.

C The group of three relatively intact ovens recommended as the focus for restoration and interpretation due to their integrity and accessibility.

D Close-up of the three ovens. As part of future work, an assessment should be undertaken of the maintenance work from the past two decades to ensure that it is historically accurate (Chad Crumrine).

E Detail of the far right door of the group of three ovens.

F Typical trunnel from the group of three ovens.

Structural Assessment

Structural engineer John Schneider provided the following observations and recommendations for restoring selected ovens at the Uniondale site. These are initial recommendations only, and should be further developed by undertaking a site-wide structural needs assessment (see next section).

Rob Pfaffmann and John Schneider learn about the replica beehive oven from members of the steering committee.

Interior of the Dunbar Historical Society's replica oven. The knowledge gained from this project can benefit future restoration work at Uniondale.

SCHNEIDER ENGINEERING, LLC

During the site visit, we visually observed existing coke ovens located along the Sheepskin Trail (a biking/hiking trail) located in Dunbar, Pennsylvania. All of these ovens have long since been abandoned and have been exposed to the weather for decades.

OBSERVATIONS

The condition of the existing coke oven structures ranged from almost completely collapsed to a significant portion of the oven structure being salvageable (especially the four relatively intact ovens identified by the design team during the December investigation).

The condition of a typical oven can be described as follows: A significant portion (approximately 30-50% or so) of the domed roof remains intact and the circular perimeter wall remains. The floors are buried beneath a couple feet of fill and it is assumed that the floors would need to be reconstructed. Many of the ovens have trees growing either directly over top of the oven dome structure or immediately adjacent to the oven. For any ovens that are to be salvaged as part of the interpretive exhibit, the trees in the vicinity of the salvaged oven(s) will have to be removed in order to restore the oven roof structures.

FINDINGS AND RECOMMENDATIONS

The original oven structures consisted of a front retaining wall constructed of stone, facing a railroad line (that coincides with the present-day biking/hiking trail), with a domed roof structure constructed of arched fire brick masonry, bearing on a circular stone wall. This domed roof was also typically buried beneath a few feet of

1196 Billings Drive ▪ Pittsburgh ▪ PA ▪ 15241

fill to permit a railroad line to be installed behind the line of ovens thus making these ovens essentially subterranean structures. A roof opening (known as the trunnel) was provided in the domed roof for access to pour the ingredients needed to create coke. An opening was also provided in the front stone wall for the removal of the coke after the process was completed.

The following are preliminary recommendations for structural rehabilitation:

1. Remove any trees or large bushes that are growing either directly over the oven structure or within 6 feet of the oven perimeter.
2. Expose the remaining domed roof structure from above by carefully removing any existing earth fill over the domed oven roof.
3. Remove any fill that is located inside the oven down to the original oven floor level. If none of the original oven floor is intact, remove the fill down to the bottom of the existing wall opening in the front retaining wall.
4. Determine the extent of salvageable domed roof and acquire the required quantity of domed roof fire brick from the remaining ovens which are not to be restored, where possible. Exercise great care in removal of existing domed roof fire brick in these non- salvageable ovens so as to not render their roofs unstable.
5. Determine the extent of salvageable front retaining wall stone and acquire the required quantity of front retaining wall stone from the remaining ovens which are not to be restored, where

possible. Exercise great care in removal of existing front retaining wall stone in these non-salvageable ovens so as to not render the walls unable to retain what earth remains above their domed roof.

6. Once the required replacement domed roof fire brick and front retaining wall stone are acquired, begin the restoration work with the reconstruction of the “stem wall” portion of the front retaining wall (that portion below the top of the front wall opening).
7. Once the “stem wall” has been reconstructed, begin the domed roof reconstruction. I recommend providing a dome form and re-pointing the existing domed fire brick mortar joints first then installing the new fire brick and mortar joints to complete the dome. Complete the domed roof by installing the brick around the trunnel opening. Once all the new stone is in and the mortar joints completed, leave the dome form in place for a minimum of 7 days before removing the formwork.
8. Once the dome is completed, complete the reconstruction of the front retaining wall up to its original height.
9. Once the dome and front retaining wall are completed, backfill on top of and around the domed area to restore the original appearance of the ovens including the railroad line on top and behind the oven as well as the one in front of the oven.
10. Complete the installation by installing the new floor tiles in the oven.

John M. Schneider, P.E.
Schneider Engineering, LLC




Planning

Site-Wide Structural Needs Assessment

A site-wide structural needs assessment is recommended as an early action. This investigation and resulting report would individually assess each of the 76 ovens and typically include drawings, photographs and a specific treatment plan for each oven.

Acknowledging that budgets are often limited and that funds need to be spent judiciously, the scope of the assessment can vary in its complexity—but should examine every oven.

The site-wide structural needs assessment is important as a tool to provide the following information:

- **Define the Resource.** What is the geographic extent of the historic resources that remain? Exactly how many ovens remain (76 or 78)? Do any remains other than the coke ovens exist, such as larry tracks or footers from buildings and structures such as the wharf wall or mines?

  Defining the resource is important, especially since site investigation for this project was limited. The state historic preservation office will require information on the entire resource as the process of determining National Register eligibility moves forward. Eligibility for listing is required if Pennsylvania Keystone Historic Preservation Grants are to be pursued.

- **Assess Risk.** The exact extent of the deterioration of each oven is unknown, but could be considerable—creating potential safety and liability risks. The site-wide assessment will reveal critical conditions and help provide a prioritized response.

- **Refine the Plans for the Selected Ovens**. As each oven is assessed, more will be learned about their history, construction and condition. This knowledge will inform a more refined plan for the 3-4 ovens that have been identified in this report as subjects for potential restoration.

COKE OVEN #11				
STABILIZATION TYPE: A				
STABILIZATION WORK REQUIRED				
MARK	TASK	ESTIMATE QUANTITY	UNIT	NOTES SPECIFIC TO THIS OVEN
A	VEGETATION & SOIL REMOVAL		SF	
	BACKFILL		CF	
	TOPSOIL, EROSION CONTROL BLANKET & RE-SEEDING		SF	
B	VEGETATION & SOIL REMOVAL		CF	
	BACKFILL		CY	
C	RE-STACK <E> WALL		SF	
	BUILD <N> WALL		SF	
D	CLEAN MASONRY		SF	
	SHOTCRETE/POINT EXT		SF	
	POINT CRACKS		LF	
	CLEAN & SHOTCRETE LINER		SF	
E	REPLACE DETERIORATED BRICK		SF	
	BUILD <N> JAMBS		SF	
F	REPLACE DETERIORATED BRICK		SF	
	<N> ARCH & INFILL BRICK		SF	
G	CLEAN/POINT TRUNNEL		EA	
	CAST TRUNNEL INFILL		EA	
	<N> TRUNNEL CAP		EA	
OTHER				

Example of an assessment of a coke oven from a site-wide structural assessment at the Redstone Coke Works in Colorado. The assessment includes a single image of each oven accompanied by a list of stabilization tasks.

Master Planning / Developing a Philosophy to Guide Future Work

The Need for Master Planning

When faced with the immediate physical needs of deteriorating and potentially dangerous resources, such as the coke ovens, expending resources on planning processes and documents may not appear to be an immediate priority. However, in order to preserve not just the ovens but also the organizational capacity to preserve them, careful planning is needed to direct resources in the most appropriate and efficient way.

A master planning process will establish long-term goals and implementation strategies, which should include articulation of a philosophy to guide the degree of stabilization or restoration across the site. This plan should also define a management structure along with roles and responsibilities, and include a market study to guide the site's interpretive success and fund-raising priorities.

Market Analysis and Fundraising

It is important to ascertain who the target audience is, who the best prospective donors of time and funding are, and how Uniondale fits into the universe of historic and cultural interpretation in Southwestern Pennsylvania. Without this knowledge, it will be difficult to develop realistic goals, and thereby chart a sustainable strategy for longterm preservation and interpretation.

The master plan should also include a component that addresses fundraising. This component should specify targets, roles and responsibilities of the management team in reaching those targets, and a systematic plan for longterm fundraising approaches.*

Developing a Philosophy to Guide Future Work

For longterm planning after this report, it will be important for the steering committee to develop an interpretive philosophy to guide the degree of structural restoration for each remaining oven.

Options range from doing nothing and allowing the site to naturally decay to restoring every oven—to some combination in between. As evidenced by the current project, the steering committee already envisions restoration of a certain number of ovens. But how many, and what to do with the other ovens, remains to be decided.

Two benchmarks offer some interesting guidance. The extent of proposed restoration at the Cherry Valley Coke Ovens in Leetonia, Ohio and the completed restoration at Redstone Coke Ovens in Redstone, Colorado was driven in part by the desire to reflect change to the site over time. The result is a gradient of restoration across each site.

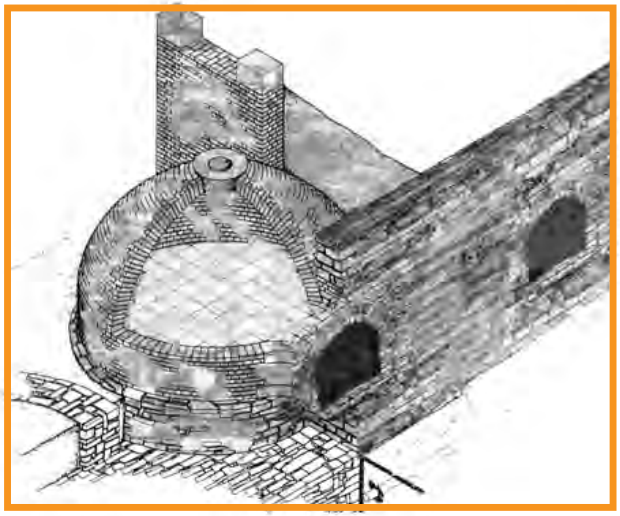
*Planning guidelines adapted in part from Bill Callahan, Western Pennsylvania Community Preservation Coordinator, Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission (PHMC), "Planning Recommendations for the Gilfillan Farm," June 6, 2011.

Cherry Valley Coke Works

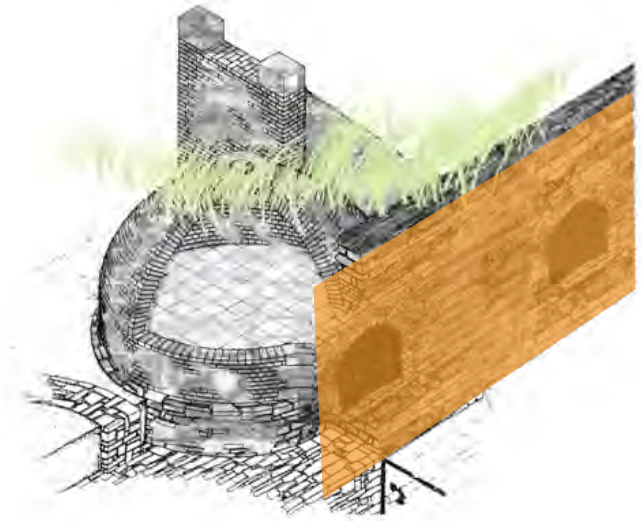
For Cherry Valley's 205 remaining ovens, the "strategy aims to make visible the element of time, by preserving the ovens in varying degrees of restoration and decay. The restoration of the coke ovens is divided into five zones. . . .."

The gradient of restoration proposed for Cherry Valley includes the following five approaches:

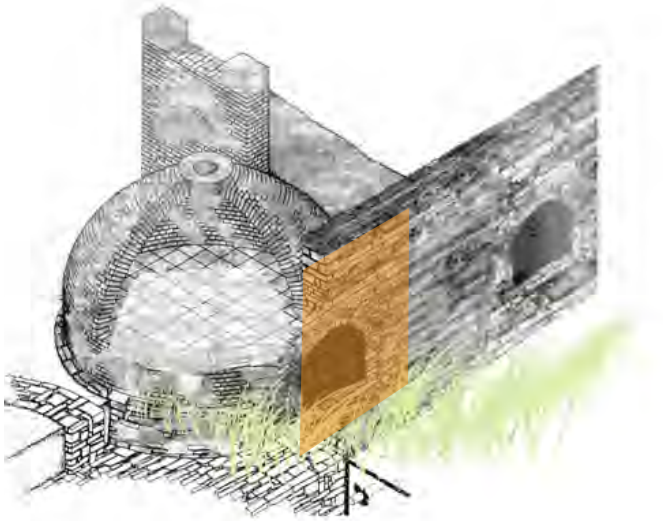
1. **Full Restoration**
   Including top, trunnel, interior dome, and base



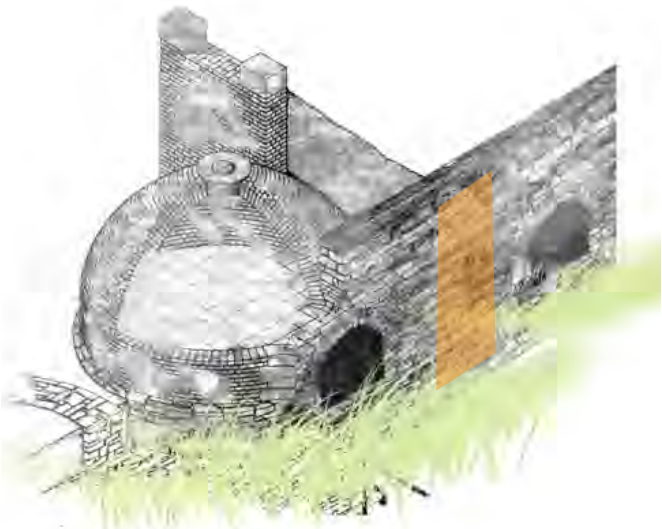
2. Facade Restoration
Restore only the brick / stone front face



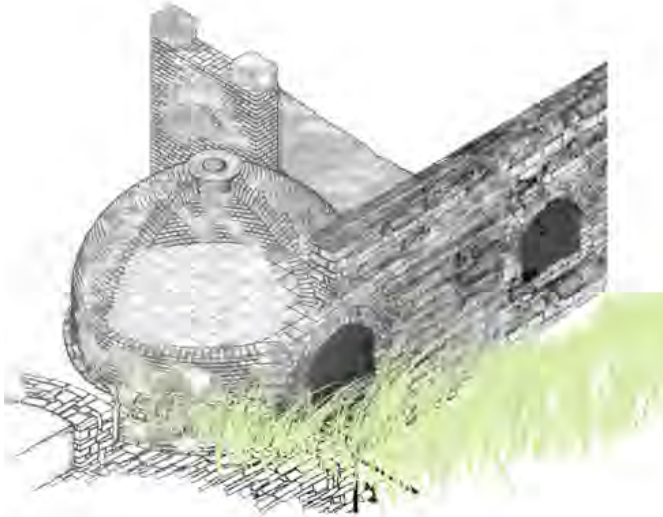
3. Partial Restoration
Use bricks on site to fill in parts of the facade



4. Restoration of Sandstone Walls
Rebuild and/or stabilize walls between ovens



5. Removal of Vegetation
No restoration; maintenance to prevent future damage



Adapted from Marin E. Braco, "Between Industry and Ecology: Revealing the Site at Cherry Valley Coke Ovens."

The Redstone Coke Works

For the 139 ovens at Redstone, the approach was similar:

"One theme that prevailed over all others as the design dialogue progressed was the 'essence of time.' Time, whether it be in the now or reverent of the past, is evident throughout the project. . . .By accepting the natural degradation of this regional asset already underway from years of weathering and neglect, it was decided that the 'essence of time' would take on a physical form within the coke ovens' structures themselves. Allowing for this decay or deconstruction of the historic built form, the landscape architect unveils a design that celebrates successional degradation of the site towards its periphery, authentically reflecting a rich and dynamic history while preserving it for generations to come. . . .Several coke ovens have been fully restored, while moving slowly north and south, the remaining ovens have been stabilized, appearing to decay back to their present day state."

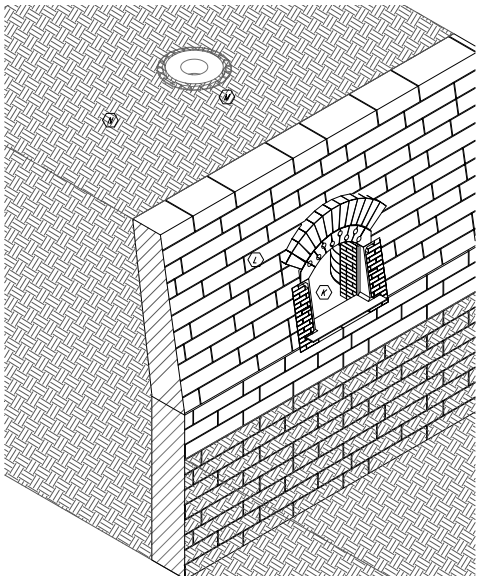
The gradient of restoration undertaken at Redstone included the following five approaches:

For additional information on developing a philosophy to guide evaluation and interpretation of coke oven site, see:

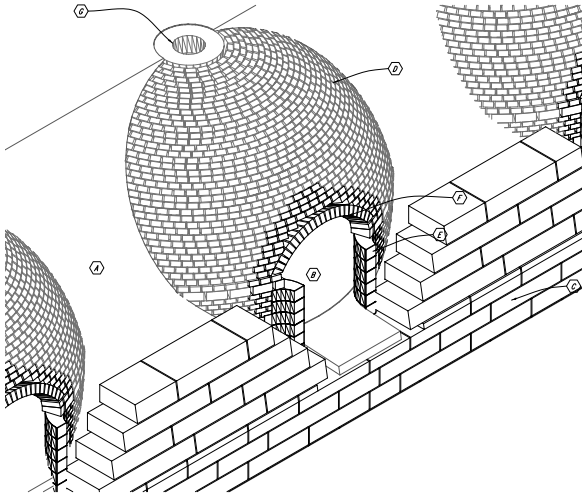
- Jim B. Jones, Jr., *Thoughts on the Development of a Regional Approach to Cultural Resources Management Planning in the Southern Appalachian Region.* National Park Service, Appalachian Cultural Resources Workshop Papers.
- Bruce J. Noble, Jr., and Robert Spude, *Guidelines for Evaluating and Registering Historic Mining Sites.* National Park Service, National Register Bulletin, 1992, revised 1997.

See also, The Secretary of the Interior's Standards in this report under "Developing a Site Management and Interpretive Plan."

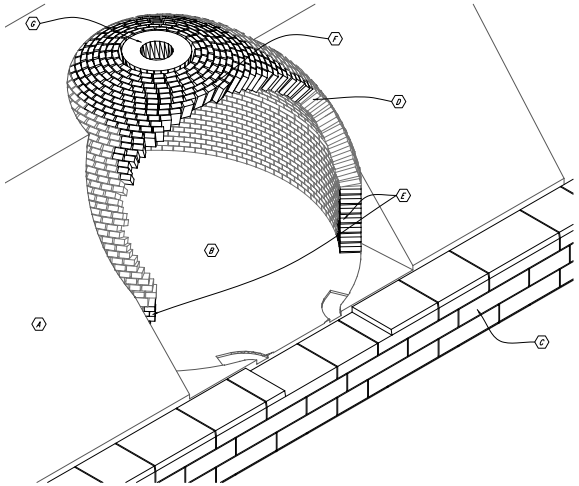
1. **Restoration**
   4 ovens



2. **Type A Stabilization—for Ovens with Most of Crown Remaining**
   37 ovens



3. **Type B Stabilization—for Ovens with Significant Portions of Crown Missing;** 7 ovens



4. **Limited or No Work**
   17 ovens

5. **Ovens Not in Scope—Modified with CMU retaining wall and concrete trunnel in 1950s;** 74 ovens

Adapted from Daniel E. Cooke, et. al., "Redstone Coke Ovens Historic Park: Preservation and Interpretation of Colorado's Coke Industry;" and "Redstone Coke Ovens Stabilization: CD Progress Issue - DWGs," JVA Consulting Engineers.

Developing a Site Management and Interpretive Plan

With a master planning process completed (or at least significantly underway), a next step should be creation of a site management and interpretive plan to establish best practices for the long-term preservation and maintenance of the Uniondale site and to provide specific direction for the future addition of interpretive elements.

A well designed site management and interpretive plan fosters stewardship and community good will by demonstrating proper oversight, respect for neighboring property owners, and care for the integrity of the historic and natural environments. Even with limited resources, a site management plan can be created that will build community support and potentially impact future fundraising efforts.

Building on the design philosophy for future work established in the master plan, the site management and interpretive plan should specify how each oven on the site will be preserved (restored, stabilized, or left to return to nature) and interpreted (or not) and in what manner.

The Secretary of the Interior's Standards

The plan should specify which Treatment under the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Standards) will guide work at the site (Preservation, Rehabilitation, Restoration or Reconstruction). The Standards are professional best practices established by the National Park Service (NPS) in matters of historic preservation and cultural resources management that are followed nationwide by historic preservation professionals in both the public and private sectors. See www.nps.gov/hps/tps/standguide/

The **Treatment of Preservation** is defined as "the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction." If this Treatment was selected to guide work at Uniondale, it would mean leaving ovens in their current deteriorated form but taking measures to stabilize and prevent further deterioration.

The **Treatment of Rehabilitation** is defined as "the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values." This Treatment is intended to be sensitive to the overall historic character of the historic oven site while adapting the site for a new use. If this Treatment was selected to guide work at Uniondale, it would mean delineating a new role for the site (such as interpretive park, campsite, picnic area, etc.) and undertaking a range of repairs (from full restoration to a return to nature, which still allow the site to convey its historic significance). Very generally, the Rehabilitation Treatment tends to be the most flexible and least costly Treatment and is the Treatment approach most often used.

The **Treatment of Restoration** is defined as "the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period." If this Treatment was selected to guide work at Uniondale, it would mean restoring the ovens and landscape features so that they look as they did during Uniondale's period of significance—sometime between its founding in 1869 and its sale to the Cambria Steel Company in 1899. This Treatment must be based on stringent documentation of historic conditions.

The **Treatment of Reconstruction** is defined as "the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location." It is unlikely that this Treatment would be selected to guide work at Uniondale since at least part of

With proper training in safe practices and protection of the ovens, a meaningful program of cyclical vegetation clearance can be undertaken.

every oven survives. Any selected reconstruction that might be necessary could fall under the Treatment of Rehabilitation.

Maintenance

With the overall Treatment established, the site management and interpretive plan should then specify critical, serious and minor preservation needs as well as routine and remedial maintenance requirements. These will build upon the existing conditions findings detailed in the site-wide structural needs assessment.

Until a formal plan can be put in place, the following maintenance tasks could be undertaken without negatively impacting the integrity of the site:

- Remove brush from the area in front of the ovens. Seasonal clearing of brush will greatly facilitate future work, especially the site-wide structural needs assessment. This activity will also allow an accurate count of the ovens to be made so that a numbering system can be established to identify each oven.
- Conduct preliminary photo documentation of each oven as part of a process of documenting change and monitoring the site.
- Remove trash from the site.

For the safety of workers and for the integrity of the ovens, the following protocols should be established:

- No one should be permitted to climb atop any of the ovens to clear brush (or for any other reason) since the structural integrity of the ovens is unknown.
- Similarly, no one should for any reason enter the ovens due to the risk of collapse.
- Workers should receive training that, at a minimum, provides an overview of the site management objectives, includes an on-site orientation to the ovens, reviews procedures for safe practices, and provides information on protecting the integrity of the historic resources.

In the design of the Cafe at the Point—a small food service venue in Pittsburgh's Point State Park—Pfaffmann + Associates created an eco-friendly structure that is more interpretive element than building. An etched stainless steel facade and glass canopy illustrate 250 years of history on the site.

Developing the Interpretive Plan

With multiple needs existing at the site—and with development of the site competing for limited funding dollars—expending resources on the careful creation of an interpretive plan may not appear to be an immediate priority. However, in order to ensure the best chance that visitors will seek out Uniondale as a destination—and then spend time and money in Dunbar—an interpretive plan (based on sound market analysis) is needed to direct resources and create a truly distinct destination.

Costly mistakes come in the form of unread panels, ignored or misinterpreted historic artifacts, and a failure to cultivate an appreciative and lasting audience. An interpretive plan challenges an organization to take a fresh look at its resources, distill and prioritize important elements and messages, and determine which communication strategies are best suited for achieving interpretive goals.

Creation of a compelling "sense of place" will bring people to the site again and again.

Additionally, an interpretive plan offers the benefit of forging strong connections between visitors and the site. For a resource like Uniondale, located along an established trail, it can serve to transform visitors from "trail user" to "trail steward." While the plan would focus on overall interpretive, education and tourism goals, it goes further to recommend specific strategies for engaging a variety of audiences.

Equally important, an interpretive plan can advance the management entity's mission by studying the organization, the opportunities and constraints presented by the site, the inherent meanings of the resources and their connections to the broader community.

Because an interpretive plan addresses both the needs of visitors and the directives of governing agencies and organizations, it requires a thoughtful analysis of multiple components. Lisa Brochu offers a useful guide to developing a plan in her book, *Interpretive Planning: The 5-M Model for Successful Planning Projects*. Conveniently, they all begin with an M: management, markets (audiences), mechanics of the site, messages, and media.

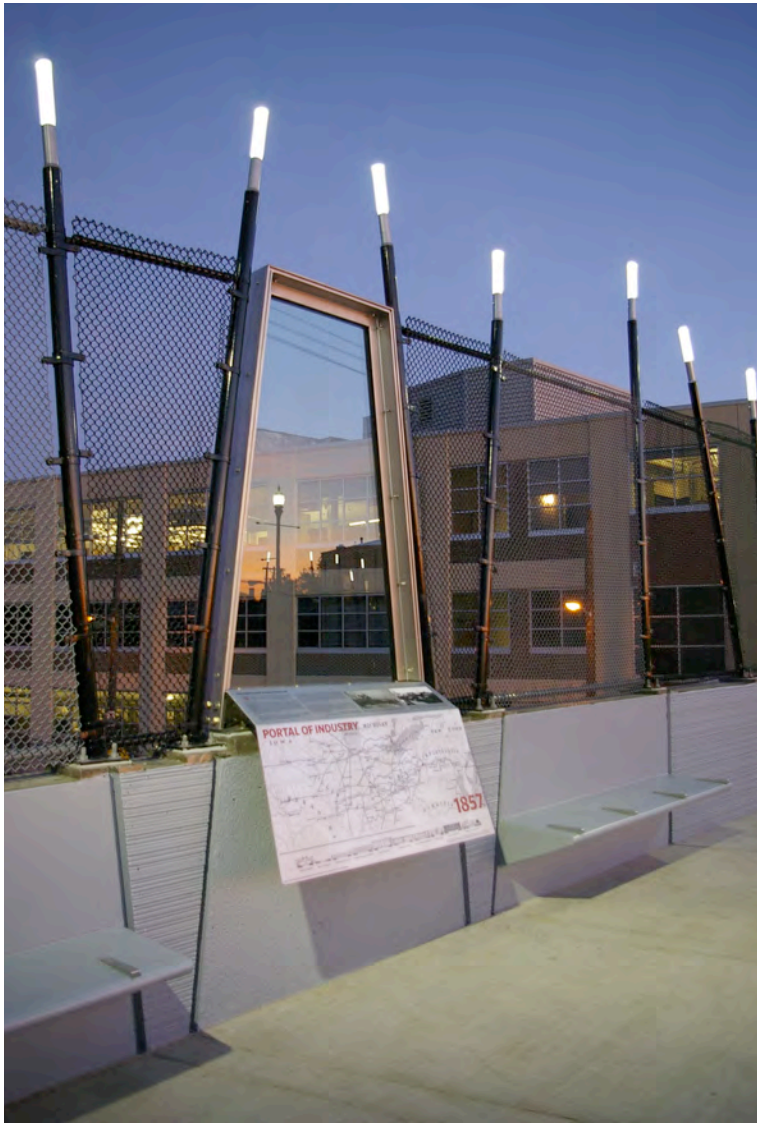
The **management** component is based on the foundational documents that define the project and project site. Institutional mission and vision statements, existing master plans, education master plans, by-laws, memoranda of understanding, and other documents all inform the interpretive planning process.

The **market** component looks at existing and target audiences to determine the factors that define "demand." In theory, this work has been accomplished as part of the master planning process. The market study will yield critical information that grounds assumptions and corrects misperceptions.

The **mechanics** component helps establish a design balance between features such as parking lots, trailheads, and landscaping; exhibit spaces; and interpretation. The visitor's experience is considered in its entirety from arrival to departure. Preferred transportation modes, learning styles, traffic flow patterns, and the needs of various audiences, including young children, seniors, and persons with disabilities, are carefully analyzed to ensure high quality, safe experiences for everyone.

The **message** component revolves around development of an overarching theme to frame information. It takes into account the site's most significant cultural heritage stories, the things visitors are most interested in, and the information management needs to communicate. The theme is the one "take-home message" you want your visitors to grasp. Long after they return home, your visitors will remember the message although they'll forget the facts.

The **media** component examines strategies for communicating the message. The last component of the planning process, it is the mix of products and techniques to effectively deliver the messages to the markets. For trails and sites like Uniondale, media typically are composed of wayside exhibits (interpretive panels), wayfinding signs, orientation signs, trailhead displays, exhibits and displays, print matter, and other material. The media can also include people —docents, volunteers, and staff who work with the public and conduct programs (adapted from Brochu, *Interpretive Planning*).



One of two panels designed by Pfaffmann + Associates to interpret the significance of the Pennsylvania Railroad's Main Line where it crosses under the South Highland Avenue Bridge in Pittsburgh.

The National Register Process

One of the goals of the project was to initiate the process of determining if the Uniondale site is eligible for listing in the National Register of Historic Places (NRHP). A successful determination of eligibility (DOE) would make the site eligible for Pennsylvania Keystone Historic Preservation Grants.

Process

The first step in determining if the Uniondale site is eligible for NRHP listing is to complete a Historic Resource Survey Form (HRSF), a document that mirrors the format and requirements of a National Register nomination, but in an abridged format. The HRSF is reviewed by staff of the Bureau for Historic Preservation (BHP)—an office of the Pennsylvania Historical and Museum Commission that serves as Pennsylvania's state historic preservation office (SHPO). They review HRSF forms biweekly and determine whether or not a resource possesses historic significance based on the criteria for National Register listing.

To date, Chad Crumrine has submitted an initial draft of the Uniondale HRSF in November 2013. Keith Heinrich, BHP reviewer for Western Pennsylvania returned comments in January 2014. While the initial draft was well received, it needed additional information and clarification before a determination of eligibility could be made. BHP asked for revision regarding two major topics. First, they wanted to know more about the mine(s) associated with the site in order to determine if they played a primary or secondary role in the significance of the site. Second, they asked that specific aspects of PHMC's Coal and Coke historic context be referenced.

In February, Chad met with Jeff Slack (project manager for this report and member of the State Historic Preservation Board, which reviews National Register nominations) to review BHP's requests. Though no longer working for the Trail Town Outreach Corps, Chad has committed to making the revisions and resubmitting the HRSF. Similarly, Jeff has volunteered to assist with the process and serve as a mentor after the present Uniondale project is complete.

What is the National Register of Historic Places?

The National Register of Historic Places is the nation's official list of properties recognized for their significance in American history, architecture, archeology, engineering and culture. The National Historic Preservation Act of 1966 established the National Register Program to coordinate and support public and private efforts to identify, evaluate and protect our historic and archeological resources. National Register properties include districts, sites, buildings, structures, and objects. They can be significant to a local community, a state, a Native American tribe, or the nation as a whole. Most properties listed in the National Register are not significant at the national level. In fact, only ten percent of properties have national significance—the vast majority are included because they are important locally. The National Park Service (NPS), which is part of the U.S. Department of the Interior, administers the National Register. To date, over 80,000 properties have been listed, representing over one million individual resources.

Benefits of Having a Property Listed in the National Register
National Register properties are distinguished by having been documented and evaluated according to uniform standards. These criteria recognize the accomplishments of all peoples who have contributed to the history and heritage of the United States and are designed to help state and local governments, federal agencies, and others identify important historic and archeological properties worthy of preservation and of consideration in planning and development decisions. Listing in the National Register, however, does not interfere with a private property owner's right to alter, manage, or dispose of property. It often changes the way communities perceive their historic resources and gives credibility to efforts to preserve these resources as irreplaceable parts of our communities.

Land Ownership & Liability

1917 map of Dunbar Borough, showing "single block, 74 ovens" at the Reid Bros. site, lower left (Dunbar Borough).

Land Ownership Considerations

When this project was first conceived, the steering committee envisioned that the design team would help provide information about the pros and cons of different forms of land ownership so that this could be considered when selecting one of the two or three sites originally under consideration.

Once the Uniondale site in Dunbar was selected as the study site, the scope was adjusted from an assessment of three potential site options to the overview below of land ownership considerations under current ownership by the Borough.

Note: The authors of this report are not legal experts. This information in this section and the next section are provided for reference only. Legal counsel should be engaged for definitive advice.

LAND OWNERSHIP

The strongest and surest way to protect a historic site is outright ownership by a public or private organization, or even by an individual, with protection goals and site management capabilities. Possessing full title to the land and all the rights associated with it offers the landowner virtually total control, limited only by laws that regulate that control, over the land and permanent protection for the site. A landowner can have a site vandal or looter arrested for trespass and property damage. An easement holder may need a court order to stop the landowner or an intruder from damaging a site. An individual or group with no legal right in the land, however, usually has no right to dictate what happens there, even if a historic site is being destroyed.

Whether a site is owned outright or protected by an easement, the landowner or easement holder has a major responsibility to guarantee site protection through effective property management or easement monitoring programs.

Land Ownership matrix adapted from: National Park Service, Cultural Resources, Heritage Preservation Services, *Strategies for Protecting Archeological Sites on Private Lands.*

TYPES OF OWNERSHIP

Strategy	Benefits	Pay Special Attention To
Fee Simple. Ownership of full title and all legal rights associated with a parcel of land and everything it contains, including minerals and historic/cultural resources.	Full ownership is the strongest way to protect historic sites, since the owner has complete control over the land (within certain limits), and resource protection is easier to manage. The owner can invoke laws of trespass and property damage.	Owner must be able to assume liability and responsibility for long-term management and site stewardship.
Easement. Partial interest or some specified legal right in a parcel of land that is less than the full, fee simple interest. A conservation, historic preservation, open space, or scenic easement is designed to protect sensitive natural, historic, and/or cultural resources. Uses that are incompatible with protecting these sensitive resources are typically restricted. Easements can be acquired by a nonprofit or government agency through purchase, donation, gift, exchange, will, or eminent domain. An easement may be for a specified period of time or in perpetuity, and runs with the land, despite changes in ownership. Easements can also be called deed restrictions.	Can be an effective way to protect historic sites if fee simple ownership is not feasible. Easement provisions can be tailored to landowner goals and site needs. Only those rights or interests needed to protect the site are transferred in the easement, leaving all other rights with the landowner, who retains ownership and use of the land. There is potential for property, income, and estate tax benefits for the donation or less-than-fair-market-value sale of an easement. Reduces costs for site protection when easements are acquired at less than fair market value for the protected area.	Thorough survey is needed to identify the nature of historic sites present. Less control over site protection than in fee simple ownership. Easement purchase can be costly, and requires careful negotiation. Easement terms must be carefully and clearly outlined, and they must be carefully monitored and enforced; landowners may need frequent attention. Easement holder must possess sufficient expertise and be financially able to monitor and enforce the easement. Property resale opportunities may be limited due to easement restrictions. Tax benefits depend on landowner's financial status and may not be sufficient motivation for landowner to donate or sell the easement.
Lease. Renting the land in order to protect and manage a sensitive resource.	Low cost approach to site protection. Rent is paid to the landowner, who retains control of property.	Short-term protection strategy since lease does not offer full control of property.
Undivided Interest. A number of parties share ownership in a parcel of land, with each owner's interest extending over the entire parcel.	Changes in or to the property cannot be made unless all owners agree.	Property management can be complicated, especially related to payment of taxes.

PUBLIC & PRIVATE OWNERSHIP

Strategy	Benefits	Pay Special Attention To
Private Ownership & Management. Land owned and managed by private individuals or by national, regional, or local nonprofit organization such as land trusts or nature or preservation conservancies.	Offers strongest legal control for site protection when land is kept in undeveloped condition. Ownership by local nonprofit keeps control within community, where there is greater likelihood of responsible management and stewardship.	Individual owner or small nonprofit may not be prepared for long-term management responsibilities and costs. Protection needs of property may not be consistent with the mission of the nonprofit.
Nonprofit Acquisition & Conveyance to Public Agency. Nonprofit buys a parcel of land and resells it to a public agency.	Nonprofits can often participate in the real estate market more easily than government agencies, and can hold land until the public agency is able to buy it. If property was purchased at less than fair market value, public agency acquires land at reduced cost.	Public agency must be willing and able to purchase land, and to assume management responsibilities.
Government Ownership. Federal, state, and local government; parks, conservation, natural resource, or historic preservation agency owns and manages land.	Federal, and some state, law and regulations require management practices sensitive to resources. Local agencies may (or may not) be required to manage resources sensitively.	Agency budgets and acquisition criteria may restrict acquisitions, and acquisition opportunities may be missed due to agency procedures. Agency commitment to sensitive resource management can vary, and site protection and agency mission may come into conflict. May remove land from the tax base, except where federal government owns lands in fee simple and reimburses local governments for loss of tax revenue. May require public visitation, which can conflict with site protection needs.
Intergovernmental Partnership. Federal, state, and local agencies form joint partnerships to own and manage land.	Larger and/or more expensive properties can be protected by sharing the responsibilities and costs of acquisition and management.	Management approaches need to be agreed upon to reduce potential for conflict
Acquisition & Saleback or Leaseback. Private organization or public agency acquires land, places protective restrictions or covenants on the land, and resells or leases land.	Proceeds from the sale or lease reimburse the costs of acquisition, reducing protection costs. Land may be more attractive to buyer due to lower sale price resulting from restrictions. New tenant or owner assumes management responsibilities.	Complicated procedures. In a leaseback, owner retains responsibility for the land but may have reduced control over the property. Not all protected land may be suitable for leasing.

Managing Liability

Owners and managers of cultural resources are often concerned that managing such a resource will expose them to liability for visitor injuries. However, resource managers have a number of legal protections that limit their exposure to liability. As a result of these legal tools, when coupled with sound risk management practices, liability concerns should not normally be an impediment to the development or management of a site.*

General Liability Categories

In general, the liability of owners and occupiers of land is defined by the extent to which one person owes a "duty of care" to the person who sustained an injury. Under these principles, a higher duty of care is owed to persons who are invited or permitted to use another's land, and therefore a correspondingly greater liability is owed to such permittees or invitees. The lowest duty of care is owed to trespassers, who are protected only from the infliction of intentional harm or gross negligence. Cultural resource managers or private landowners who charge a fee are at greater risk of liability because they owe the payee a greater responsibility to provide a safe experience.

Legal Principles Governing Liability

Pennsylvania, like many states, governs liability through the enactment of statutes. For example, cultural resource managers often receive special protection from liability by state-enacted Recreational Use Statutes (RUS). Recreational Use Statutes (which are in effect in some form in all 50 states), limit the liability of landowners who allow the public to use their land for recreational purposes by limiting the landowner's liability for recreational injuries when access was provided without charge. RUSs alter common law tort principles for certain landowners who allow the public free use of their land for recreational purposes. While such landowners might normally owe a higher duty of care toward recreational users as licensees, a RUS limits the duty of care and corresponding liability of such landowners to that owed to trespassers.

Pennsylvania's Statutory Protections for Trails

Pennsylvania has several statutes that are potentially available to limit the tort liability of cultural resource managers in the event a person suffers personal or property injury while using the resource. First, Pennsylvania has enacted a recreational use statute, which is called the Recreation Use of Land and Water Act (RULWA), 68 P.S. §§ 477-1 to 477-8 (2003). Under RULWA, "an owner of land owes no duty of care to keep the premises safe for entry or use by others for recreational purposes, or to give any warning of a dangerous condition, use, structure, or activity on such premises to persons entering for such purposes," 68 P.S. § 477-3. However, liability is not limited "for willful or malicious failure to guard or warn against a dangerous condition, use, structure, or activity," 68 P.S. § 477-6(1). Liability is also not limited for injuries suffered if the owner charges for entry onto the land, 68 P.S. § 477-6(2). The law covers more than just pure "owners." Possessors, managers and lessors are protected, too. The RULWA is applicable to both public and private landowners. See Favoroso v. Bristol Borough, 569 A.2d 1045, 1046-47 (Pa. Commw. 1990).Even if the landowner doesn't charge a fee but the manager does, the parties are not eligible for RULWA protection. Consideration received for land leased to the state or one of its subdivisions is not considered a fee within the meaning of 68 P.S. § 477-6(2).

The Pennsylvania Supreme Court has held that RULWA does not insulate owners of fully developed recreational facilities from the normal duty of maintaining their property in a manner consistent with the property's designated and intended use by the public, Mills v. Commonwealth, 633 A.2d 1115, 1119 (Pa.1993). Instead, RULWA's protections are limited to substantially unimproved land. Therefore, if a recreational facility has been designed with improvements that require regular maintenance to be safely used and enjoyed, the owner of the facility has a duty to maintain the improvements, Stone v. York Haven Power Co., 749 A.2d 452, 456 (Pa. 2000).

Pennsylvania's Rails to Trails Act, 32 P.S. § 5611 et seq, also limits liability for recreational trail use in a similar manner to Pennsylvania's RUS. Liability is limited for the owner or lessee who permits trail use by the public under the Rails to Trails Act. Like the RULWA, the act applies to both private and public owners, 32 P.S. § 5621(b). Also as with RULWA, liability is not limited if there are any fees charged in connection with trail use or for "willful or malicious failure to guard or warn against a dangerous condition, use, structure or activity." 32 P.S. § 5621(d).

Risk Management

Pennsylvania's Rails to Trails Act and RULWA are defenses that may be available to limit the liability of a cultural resource manager in the event of a personal injury lawsuit. Nonetheless prudent managers should adopt risk management strategies to minimize the possibility of injuries and to protect themselves in the event they are sued. Managers should:

- design the site and trails through the site for safety;
- use prominent signage to warn users of potentially dangerous areas;
- regularly inspect the trail and historic resources and correct any unsafe conditions; keep records of inspections and remedial changes;
- prominently post hours of operation and other rules and regulations, along with emergency contact information;
- develop procedures for handling medical emergencies,
- incorporate, which may limit the personal liability of principals;
- purchase insurance or place the trail in public ownership, where it can be covered by the overall insurance policy of the city, county or state, and;
- understand the state recreational use statute and other pertinent laws.

*Managing Liability adapted from: Rails-to-Trails Conservancy, *Liability and Rail-Trails in Pennsylvania.*

Additional Information

Rail-Trails and Liability, A Primer on Trail-Related Liability Issues & Risk Management Techniques, Rails-to-Trails Conservancy, 2000.

"Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails," Rails- to-Trails Conservancy, 2001

Rail-Trail Maintenance and Operation, Ensuring the Future of Your Trail, Rails-to-Trails Conservancy, 2005

Pennsylvania's Recreational Land and Water Use Act—fact sheet, Pennsylvania Department of Conservation and Natural Resources, 2006, www.dcnr.state.pa.us/brc/ publications/



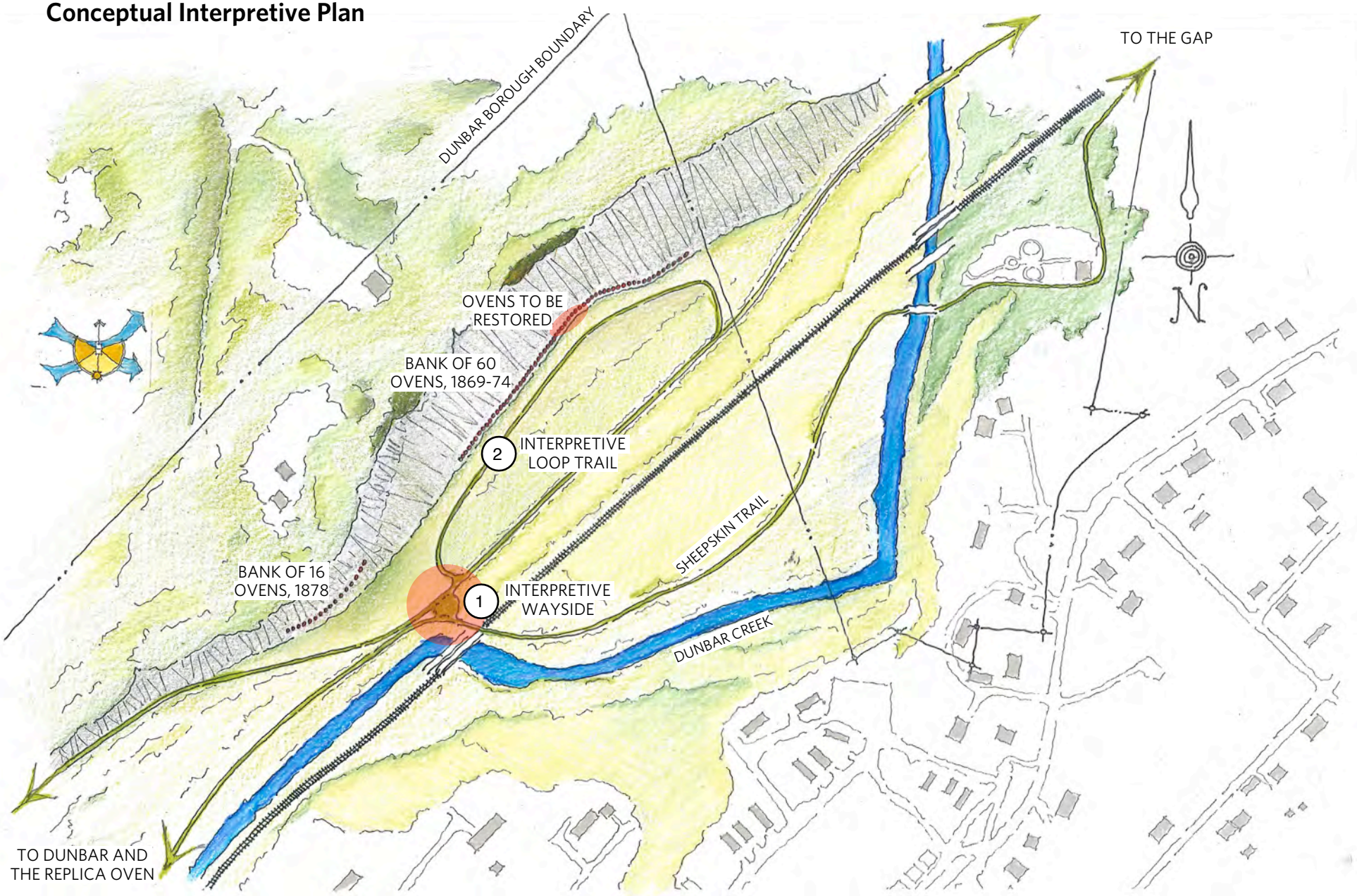

Interpretive Opportunities

Interpretive Design Concepts for the Uniondale / Reid Brothers Coke Works

The presence of 3 or 4 adjacent, relatively intact coke ovens at or near trail grade (as documented at the December site visit) has suggested the following interpretive design opportunities:

1. **An Interpretive Node.** A primary, or initial, interpretive opportunity immediately adjacent to the Sheepskin Trail (near the bend where the trail crosses Dunbar Creek, below the group of 16 ovens—where the steering committee assembled on the October 7 visit). This wayside, or interpretive node, could contain an overview of the site and a preview of attractions and amenities a half-mile further south in the Borough.
2. **An Interpretive Trail.** A short interpretive loop trail (measuring less than one-quarter mile) that would allow visitors to walk or bike the full extent of the site and view the former Uniondale ovens. This loop would provide space for additional, more detailed interpretation while also affording broad vistas of the entire site.

Conceptual Interpretive Plan



Concepts for interpretive elements using Cor-Ten steel—a special type of steel that resists the corrosive effects of rain, snow, ice, fog, and other meteorological conditions by forming a coating of dark brown oxidation over the metal.

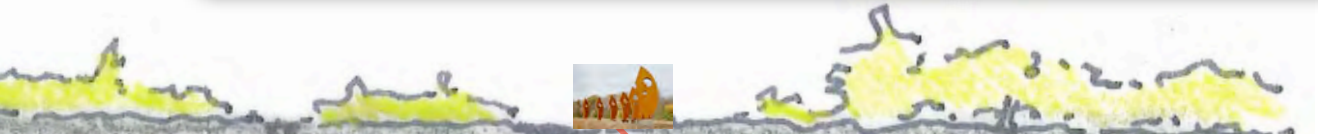
While this is just one option among many that can be explored in the interpretive planning process, it offers the opportunity to work in steel, the end-product of the coke production process.

Larry cars atop ovens

Coke workers at the ovens; or miners on the hillside

Section detail through typical oven

Maps or scenes can illustrate the extent of the coke works



Section through the Uniondale site

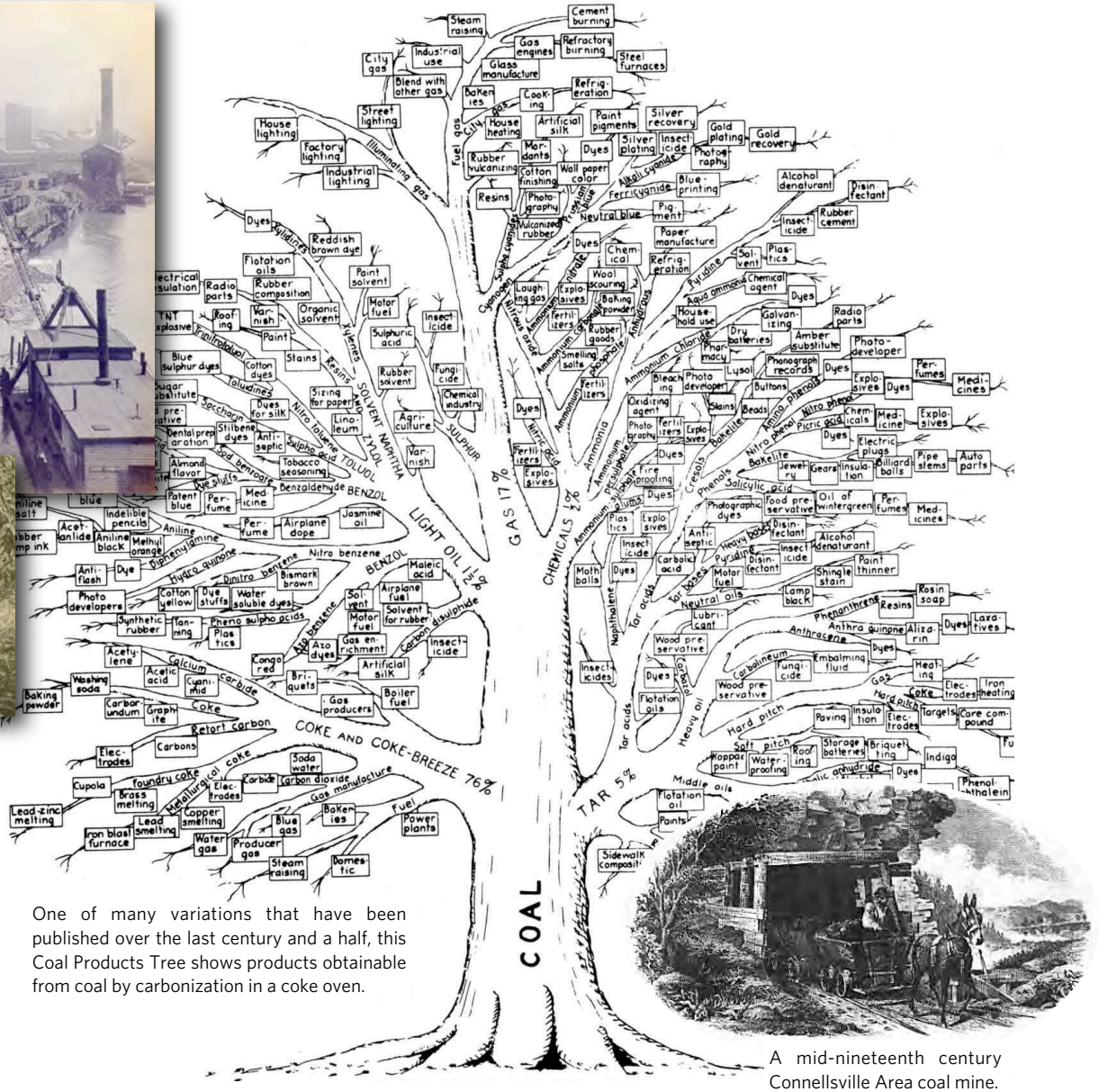
Public art can welcome visitors—cut outs can align with historic resources to direct the eye to distant views

Oven fronts can be replicated and lit

Potential Thematic Concepts

The end of the line for much of the Connellsville Area's coke—a steel mill in Pittsburgh.

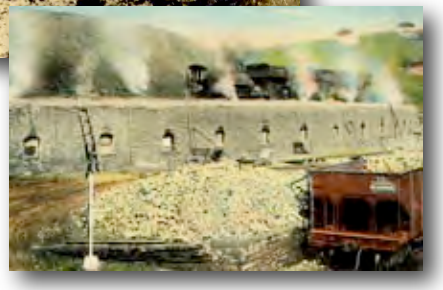
Coal, Coke and Steel Production



One of many variations that have been published over the last century and a half, this Coal Products Tree shows products obtainable from coal by carbonization in a coke oven.

A mid-nineteenth century Connellsville Area coal mine.

Early, Innovative and Independent—Significance of the Uniondale Site



In terms of layout and landscape features, the Connellsville area coke works depicted in these photographs bear a striking resemblance to the Uniondale works and could be used to interpret the site.

THOMAS W. WATT
DIED ON SUNDAY.

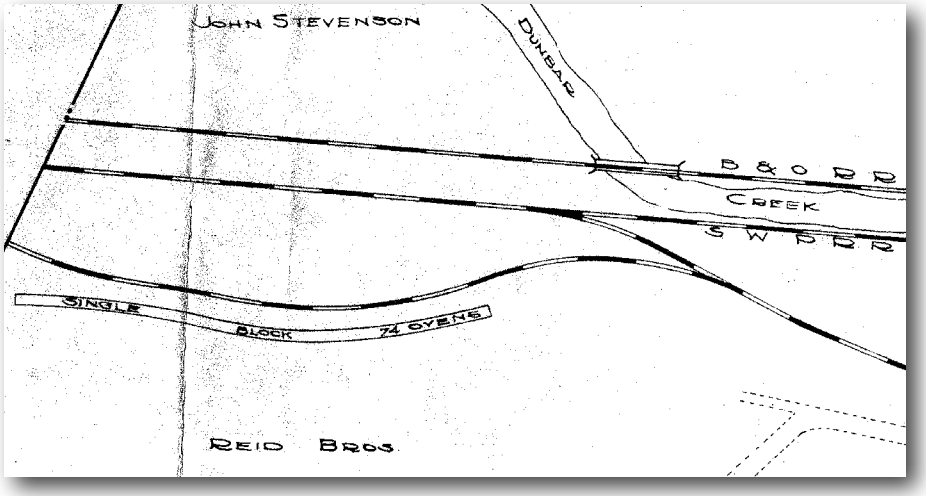
Well Known Resident of Dunbar and Pioneer Coke Operator.

A BRIEF SKETCH OF HIS CAREER.

Built a Section of the Fayette County Branch of the Baltimore & Ohio Between Connellsville and Uniontown—Was a Stalwart Presbyterian.

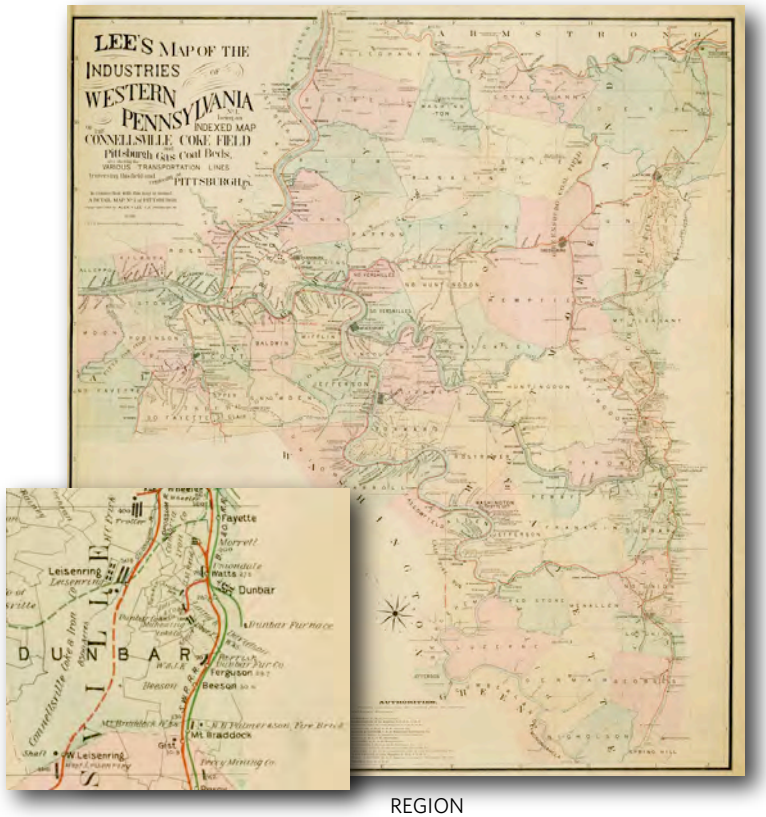
Under the leadership of Thomas W. Watt, the Uniondale works became one of the first large-scale coke works in the region *(Connellsville Courier,* August, 27, 1906).

Concentric Circles of Influence

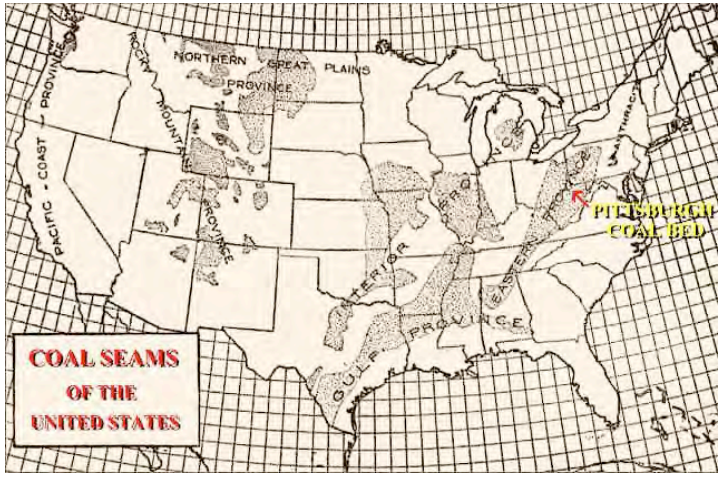


SITE

BOROUGH



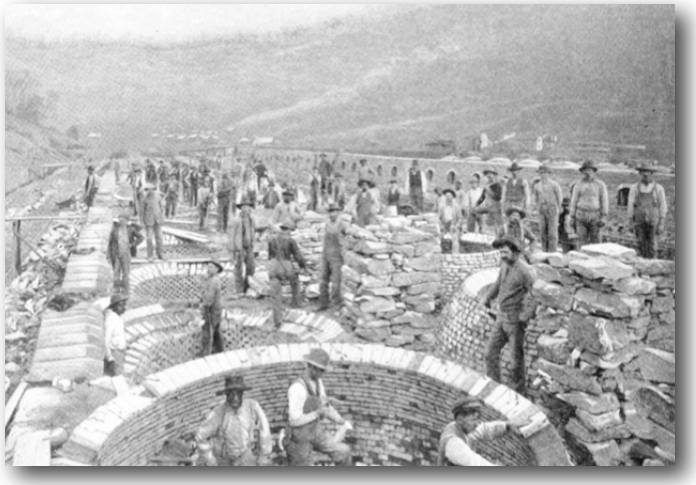
REGION



NATION

Social History

PEOPLE—A number of Dunbar area ovens were converted to housing during the Great Depression.



LABOR—Constructing beehive coke ovens.

WOMEN

> In the coke districts, the Hungarian women went to work with the men. They were not directly employed by the operators, but by their husbands, who were thus enabled to take charge of so many more ovens. The spectacle of half-naked women drawing coke-ovens was felt to be a public scandal, and, backed by the strong feeling against the "Huns" on the part of the laboring population, led to the enactment of a most stringent law at the last session of the Legislature.

Henry George, "Labor in Pennsylvania," III. *The North American Review,* v. 143, no. 359, Oct. 1886.

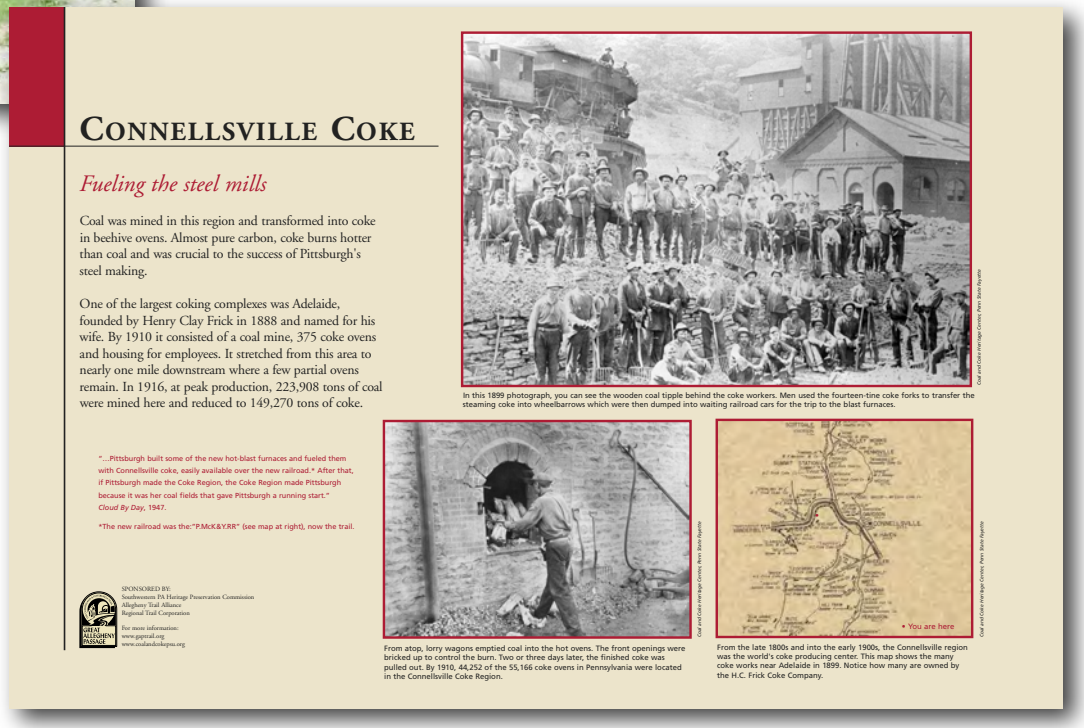
IMMIGRATION
(Source: Coal and Coke Heritage Center)

Interpretation: The Need for Compelling Design & Public Art

Think Outside the Box

To create a truly engaging interpretive experience at the Uniondale site, we strongly encourage thinking outside the box—especially when media/materials are considered.

To accomplish the steering committee's goals, the interpretive elements at Uniondale need to be sufficiently compelling to divert people from their hike or ride on the Great Allegheny Passage *and* to motivate people from throughout the region to visit. Standard practices—no matter how well-executed—will not create a sense of place and drive visitors to the site.



Connellsville Coke

Fueling the steel mills

Coal was mined in this region and transformed into coke in beehive ovens. Almost pure carbon, coke burns hotter than coal and was crucial to the success of Pittsburgh's steel making.

One of the largest coking complexes was Adelaide, founded by Henry Clay Frick in 1888 and named for his wife. By 1910 it consisted of a coal mine, 375 coke ovens and housing for employees. It stretched from this area to nearly one mile downstream where a few partial ovens remain. In 1916, at peak production, 223,908 tons of coal were mined here and reduced to 149,270 tons of coke.

"...Pittsburgh built some of the new hot-blast furnaces and fueled them with Connellsville coke, easily available over the new railroad.* After that, if Pittsburgh made the Coke Region, the Coke Region made Pittsburgh because it was her coal fields that gave Pittsburgh a running start."
Cloud By Day, 1947.

*The new railroad was the:"P.McK&Y.RR" (see map at right), now the trail.

SPONSORED BY:
Southwestern PA Heritage Preservation Commission
Allegheny Trail Alliance
Regional Trail Corporation

For more information:
www.gaptrail.org
www.eukanokokpsu.org

In this 1899 photograph, you can see the wooden coal tipple behind the coke workers. Men used the fourteen-tine coke forks to transfer the steaming coke into wheelbarrows which were then dumped into waiting railroad cars for the trip to the blast furnaces.

Coal and Coke Heritage Corridor, Penn State Fayette

From atop, lorry wagons emptied coal into the hot ovens. The front openings were bricked up to control the burn. Two or three days later, the finished coke was pulled out. By 1910, 44,252 of the 55,166 coke ovens in Pennsylvania were located in the Connellsville Coke Region.

Coal and Coke Heritage Corridor, Penn State Fayette

• You are here

From the late 1800s and into the early 1900s, the Connellsville region was the world's coke producing center. This map shows the many coke works near Adelaide in 1899. Notice how many are owned by the H.C. Frick Coke Company.

Coal and Coke Heritage Corridor, Penn State Fayette

Examples of interpretive elements currently in use along the Great Allegheny Passage. Interpretive elements such as these are unlikely to drive sufficient visitors to Uniondale (Images provided by Chad Crumrine).

Funding Opportunities

Funding Sources

Examples of ongoing grants that are typically repeated annually.

Pennsylvania Historical & Museum Commission—
Keystone Historic Preservation Grants

The Keystone Historic Preservation Grant program provides funding support for projects that identify, preserve, promote and protect historic and archaeological resources. The maximum grant award from PHMC to an organization is $25,000 for project-focused activities and $50,000 for construction projects. Grants require a 50/50 CASH match.

Categories of support for project-focused grants include:

- Cultural Resources Surveys (such as the site-wide structural needs assessment proposed for Uniondale)
- National Register nominations
- Planning and Project Development Assistance (such as historic structure reports, feasibility studies and preservation master plans, such as the one proposed for Uniondale)

Categories of support for construction grants include projects that fall under the Secretary of the Interior's Treatments of Preservation, Rehabilitation or Restoration, and could include the stabilization and restoration work proposed for Uniondale.

Due March 3, 2014 (and offered annually)

www.portal.state.pa.us/portal/server.pt/community/grants_and_funding/3748

For program information, please contact Karen Arnold, program manager at (717) 783-9927 or kaarnold@pa.gov

Laurel Highlands Visitors Bureau—Tourism Grant Program

The purpose of this grant program is to enhance the tourism experience, increase tourism, visitation and overnight stays within Fayette County. Awards are granted annually on the basis of merit as determined by the Fayette County Tourism Grant Review Committee and administered by the Fayette County Commissioners and the Laurel Highlands Visitors Bureau.

Categories of support include:

- Marketing and Advertising Programs (a possible source of funding for the market study proposed for Uniondale)
- Capital Projects that develop new or enhance existing nonprofit tourist attractions or amenities (a possible source of funding for the proposed orientation and interpretive elements at Uniondale)
- Operational Expenses
- Tourism Education

Due March 7, 2014 (and offered annually)

http://members.laurelhighlands.org/marketing-resources/tourism-grant-program.asp

Contact 724-238-5661, ext 101 for more information.

Pennsylvania Department of Conservation and Natural Resources—Community Recreation and Conservation Program

Community Recreation and Conservation grants are awarded to municipalities and authorized nonprofit organizations for recreation, park, trail and conservation projects. These include planning for feasibility studies, trail studies, conservation plans, master site development plans, and comprehensive recreation, park and open space and greenway plans; land acquisition for active or passive parks, trails and conservation purposes; and new development and rehabilitation of parks, trails and recreation facilities.

Due April 16, 2014 (and offered annually)

https://www.grants.dcnr.state.pa.us/GrantPrograms.aspx

Contact Name: Grants Customer Service
Contact Phone: 800-326-7734
Contact E-mail: dcnr-grants@pa.gov

Start of the Sheepskin Trail in Dunbar Borough

Funding Sources

Examples of recent relevant grant opportunities. Verify with each funder to determine if grants will be repeated in the future.

PA Downtown Center—Nature Based Placemaking

Nature-Based Placemaking (NBP) begins in communities where a natural asset - a park, a trail, a river, a lake, etc. - is recognized and developed as an economic opportunity in the community. The first step in creating a Nature-Based Place is to recognize and embrace the natural asset as a generator for economic activity. NBP is about the connection and collaboration among the focus areas of Tourism, which includes hospitality and guest services; Business, including shopping and entertainment; and Civic, where the focus is on education and emotion. The Pennsylvania Downtown Center (PDC), with the support of the PA Department of Conservation and Natural Resources (DCNR), will implement pilot projects in 2014 to further develop these connections.

Due February 28, 2014

www.padowntown.org/training-events/nature-based-place-making

Pennsylvania Rail-Trails—Trail Assistance Mini-Grant Program

The mini-grant program managed by Rails-to-Trails Conservancy (RTC) began as a way to assist trail organizations or municipalities that need to make small repairs and improvements to their trail outside of the regular DCNR grant schedule, and well below the higher-dollar amounts usually requested on major grants.

Due February 28, 2014

www.railstotrails.org/ourWork/whereWeWork/northeast/projects/PA-TrailMiniGrants.html

Contact Pat Tomes at 717-467-4024

Potential Additional Sources

The Pittsburgh Foundation—Trail Volunteer Fund

The Trail Volunteer Fund of The Pittsburgh Foundation was founded in 2007 to provide grants to purchase tools, materials, and supplies to be used by volunteer trail projects that create, maintain, or enhance the network of trails suitable for bicycle touring in western Pennsylvania and interconnected trails in nearby areas. In this way the Fund celebrates and encourages the volunteers whose work has made such valuable contributions to western Pennsylvania's growing network of motor-free trails.

The Trail Volunteer Fund is designed for projects of a few hundred to perhaps a few thousand dollars, thus complementing the major grants available from other sources.

Volunteers do everything from acquiring land to construction and maintenance to office tasks such as accounting and publishing newsletters.

Due the first day of March, June, September, and December with review occurring in the same month.

The TVF could offer support for development of the proposed loop interpretive trail at Uniondale.

http://they-working.org/

DCNR Heritage Area/Conservation Landscape Mini-Grants

Offered periodically in the past, Mini-Grants are intended to advance small projects that sustain a sense of place while revitalizing communities. Projects should conserve, restore or improve ecological, cultural, historic or recreational resources, and enhance outdoor-based tourism. If funding is considered, the grant program would be run by The National Road Heritage Corridor—an organization already participating in the Uniondale project.

Trail Town Program—Community Connections Projects

Funding may be considered for trail infrastructure enhancements, such as interpretive/directional signage or public art, through the Trail Town Program Community Connections Program.




Next Steps: Phases & Budgets

Next Steps: Phases & Budgets

The following planning initiatives are recommended in an order that makes sense from a chronological and fundraising perspective.

Cost figures are preliminary estimates that can vary based on negotiated scope and in-kind support.

Strategy	Estimate of Probable Cost	Notes
Determine eligibility for listing in the National Register of Historic Places. If approved, eligibility will allow PHMC Keystone Preservation Grants to be pursued.	No Cost (typically $2000 to $4000 to complete an HRSF)	An initial draft of a Historic Resources Survey Form has been reviewed by PHMC. Jeff Slack and Chad Crumrine have volunteered to edit and resubmit the form.
Define the Management Entity for the Site. This planning process should clarify roles and responsibilities within the Borough as well as for collaborating organizations (such as those on the current steering committee).	$2000 to $3000 (perhaps via a nonprofit organizational planning/capacity grant)	Though formally recommended in the Master Planning phase, it is important to begin this clarification process as soon as possible.
Conduct a site-wide structural needs assessment. This should examine each oven, define the resource from a PHMC/preservation standpoint, assess risk, refine plans for the four focus ovens, prioritize needs, and provide cost estimates for stabilization/ restoration.	$6000 to $8000 (depending on level of complexity and structural engineering time; assuming brush has been cleared)	Excludes a formal cadastral, or property, survey.
Conduct a formal property survey (i.e., cadastral survey). Including topographical features, such as land elevations, will aid in future site planning.	$5000 to $10,000 (depending on the level of information desired)	This is an important early step that should include the necessary due diligence and discovery to verify parcel dimensions, location, ownership, etc.
Implement an initial plan for limited, ongoing maintenance. This could include limited brush and trash removal.	Minimal Cost (volunteers)	Training must be required to minimize harm to the historic resources and the people working on them.
Develop a master plan. This should 1) identify goals and implementation strategies, articulate a stabilization philosophy, define the site management structure (if not already done), 2) include a market study (to identify visitor and funding audiences), and 3) outline a long-term fundraising strategy.	$20,000 to $25,000	The site-wide structural needs assessment and master plan could be combined, thus offering certain efficiencies and cost savings.

Strategy	Estimate of Probable Cost	Notes
Create a site management and interpretive master plan. This should establish best practices for long-term preservation and maintenance and provide specific direction for future interpretive elements. The interpretive master plan should include developing 6-8 stops along the self-guided interpretive loop trail plus interpretive elements at the initial interpretive wayside along with draft copy.	$15,000 to $20,000 (depending on complexity)	Excludes design (drawings and specifications for exhibit/interpretive elements) This phase could be broken into two separate planning documents if funding is limited.
Construct the interpretive wayside and its interpretive elements.	$20,000 to $25,000 and up (depending on complexity, amenities and degree of volunteer support); assumes $1500 to $3000 for interpretive panels; $8000 to $15,000 for a larger, multi-themed kiosk	Includes design
Construct the interpretive loop trail (approximately 1200 linear feet; less than 1/4-mile) and its 6-8 interpretive elements. Per the initial design framework developed in this report, this should include at least one signature piece of public/interpretive art designed to drive visitation by creating a truly unique and compelling destination.	$25,000 to $30,000 for trail construction (assumes $100,000 to $150,000 per mile for crushed aggregate; depends on materials, degree of earthmoving and drainage and level of volunteer support) Fabrication of interpretive elements: $50,000 to $100,000 and up (depending on the nature of the design)	Includes design
Nominate the Uniondale Coke Works to the National Register.	$6000 to $8000	




Bibliography

Bibliography

Braco, Marin E. "Between Industry and Ecology: Revealing the Site at Cherry Valley Coke Ovens." Master's thesis, State University of New York, College of Environmental Science and Forestry, 2012.

Brochu, Lisa. *Interpretive Planning: The 5-M Model for Successful Planning Projects.* Fort Collins, CO: InterpPress, 2007.

Chandler, Susan M., and Diane M. Perry. "Stabilization Assessment of the Redstone Coke Oven Historic District (5PT451), Pitkin County, Colorado." Montrose, CO: Alpine Archaeological Consultants, Inc., 1995.

Connellsville Coal and Coke Region, Historic American Engineering Record, National Park Service, 1993. Cooke, Daniel E., Valerie Alexander Yaw and Ryan Yugteveen. "Redstone Coke Ovens Historic Park: Preservation and Interpretation of Colorado's Coke Industry." 2012 Saving Places Conference.

DiCiccio, Carmen Peter. *Bituminous Coal and Coke Resources of Pennsylvania, 1740-1945.* Harrisburg: Pennsylvania Historical & Museum Commission, Bureau for Historic Preservation, 1993.

Flink, Charles, A, Kristine Olka and Robert M. Searns. *Trails for the Twenty-first Century: Planning, Design, and Management Manual for Multi-Use Trails,* 2d ed. Rails-to-Trails Conservancy. Washington, DC: Island Press, 2001.

Fowler, T.M. *Dunbar, Fayette County, Pennsylvania, 1900. Bird's-eye-view.*

Fulton, John. *Coke: A Treatise on the Manufacture of Coke and Other Prepared Fuels and the Saving of By-Products.* Scranton: International Textbook Company, 1905.

H.C. Frick Coke Company. *Connellsville Coke.* Pittsburgh, PA, [1892].

Hovanec, Evelyn A. *Common Lives of Uncommon Strength: The Women of the Coal and Coke Era of Southwestern Pennsylvania, 1880-1970.* Uniontown: Penn State Fayette, Coal and Coke Heritage Center, 2001.

Jones, Jim B., Jr. *Thoughts on the Development of a Regional Approach to Cultural Resources Management Planning in the Southern Appalachian Region.* National Park Service. Appalachian Cultural Resources Workshop Papers, 2008.

Morris, Hugh. *Rail-Trails and Liability: A Primer on Trail-Related Liability Issues & Risk Management Techniques. Washington, DC:* Rails-to-Trails Conservancy and the National Park Service, 2000.

Morrison, Donald C., et. al. *Dunbar: The Furnace Town.* Dunbar, PA: Centennial Book Committee, [1983].

Muller, G.F. "The City of Pittsburgh." *Harper's New Monthly Magazine* LXII, no. 367 (1880): 49-68.

National Park Service, Cultural Resources, Heritage Preservation Services. *Strategies for Protecting Archeological Sites on Private Lands.* http://tps.cr.nps.gov/pad/index.html.

Noble, Bruce J., Jr., and Robert Spude. *Guidelines for Identifying, Evaluating and Registering Historic Mining Sites.* National Park Service, 1992, revised 1997. www.nps.gov/nr/publications/bulletins/nrb42/

Pennsylvania Annual Mining Activity Reports for Bituminous Mines. www.libraries.psu.edu/psul/emsl/paresources/annualreport.html

Pennsylvania Department of Conservation and Natural Resources. *Pennsylvania Trail Design & Development Principles: Guidelines for Sustainable, Non-Motorized Trails.* www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20028130.pdf

Rails-to-Trails Conservancy, *Liability and Rail-Trails in Pennsylvania.* www.railstotrails.org/resources/documents/wherewework/Liability%20and%20Rail-Trails%20in%20Pennsylvania_final.pdf

Sheppard, Muriel Earley. Cloud by Day: The Story of Coal and Coke and People. Chapel Hill: University of North Carolina Press, 1947.

Warren, Kenneth. Wealth, Waste and Alienation: Growth and Decline in the Connellsville Coke Industry. Pittsburgh: University of Pittsburgh Press, 2001.




PFAFFMANN + ASSOCIATES

223 Fourth Avenue
Suite 800
Pittsburgh, PA 15222
412.471.2470
www.pfaffmann.com