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U.S. Department of the Interior

Cuyahoga Valley National Park
Ohio

Ohio and Erie Canal Cultural Landscape Report

Cuyahoga Valley National Park



October 2022



Cover Illustration: The canal prism looking north toward Tinkers Creek Aqueduct (QE, April 2021).

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Ohio and Erie Canal
CULTURAL LANDSCAPE REPORT

Cuyahoga Valley National Park

Summit and Cuyahoga Counties, Ohio

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Ohio & Erie Canal
Cultural Landscape Report

Cuyahoga Valley National Park

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October 2022

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Lock 36 and Pinery Narrows, ca. 1890-1900 (CVNP slide D-5).

01 Introduction

The Ohio & Erie Canal was constructed between 1825 and 1832 as a 308-mile inland waterway connecting Lake Erie at Cleveland with the Ohio River at Portsmouth. The opening of the northern division of the canal between Akron and Cleveland in 1827 was the catalyst for the agricultural and commercial development of the Cuyahoga Valley. The canal was a key component of northeastern Ohio's transportation network for several decades. Approximately 22 miles of the Ohio & Erie Canal passes through Cuyahoga Valley National Park, following the general north–south path of the river between Cleveland and Akron. Today the cultural landscape contains the remains of numerous historic structures, including locks, aqueducts, waste structures, and culverts linked by the canal prism and Towpath Trail.

Project Purpose

Cuyahoga Valley National Park's 2013 *Foundation Document* identifies the Ohio & Erie Canal as a fundamental park resource. The *Foundation Document* highlights the need for a "Canal Management Plan" to guide appropriate repairs, prioritize routine and deferred preservation maintenance efforts, provide recommendations for repairing hazards or making compatible code-driven upgrades, protect natural resources, and enhance visitor experience. This cultural landscape report builds on previous documentation and recommendations provided by a 2019 *Ohio & Erie Canal History and Historic Structures Assessment* (HRA) and 2009 *Cultural Landscape Inventory* (CLI) to document, evaluate, and provide treatment guidance for the physical landscape associated with the Ohio & Erie Canal cultural landscape within Cuyahoga Valley National Park. The CLR fulfills the requirements of a Canal Management Plan.[1]

The cultural landscape report:

1. Documents condition of existing cultural landscape features and attributes along the canal corridor, including an increased understanding of the condition of canal structures.
2. Assesses landscape integrity and establishes a comprehensive list of contributing features and attributes associated with the canal.
3. Increases understanding of hydrological processes and other natural resources within the canal landscape that might be impacted by preservation maintenance or landscape rehabilitation efforts.
4. Identifies a preferred treatment approach for the cultural landscape.
5. Provides clear direction for accommodating visitor use within the historic canal landscape while complying with the Secretary of the Interior's Standards for Preservation and Rehabilitation and implementing best landscape maintenance practices.
6. Proposes design recommendations for site treatment that protect resources and are compliant with ADA and ABA Guidelines for Facilities and Buildings; Recreation Facilities; Outdoor Developed Areas and/or Shared Use Paths.
7. Provides direction for managing vegetation that is impacting structures, slopes, and historically significant views related to the canal.
8. Identifies priorities for recommended treatment to address current and future visitor needs.

This report is being prepared concurrently with a Community Access Plan (CAP), which will provide overarching guidance for managing visitor use at the park and address new and emerging visitor needs to

[1]Heberling Associates, Inc., *Ohio & Erie Canal History and Historic Structure Assessment (*Alexandria, Pennsylvania: Friends of the Crooked River and Cuyahoga Valley National Park, 2019); and National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory* (Cuyahoga Valley National Park: National Park Service, 2009).

ensure a connection with and protection of key resources. The CAP will provide park-wide guidance related to parking; congestion and user conflicts; wayfinding, circulation, and visitor information; and river access. The CLR provides treatment recommendations and character guidance to support future planning decisions by the CAP.

Scope of Work and Methodology

Methodology

A cultural landscape report is the primary document used by the NPS to inform long-term management and treatment decisions for its historically significant landscapes. This CLR follows a cultural landscape approach adhering to federal standards and guidelines, including:

- *A Guide to Cultural Landscape Reports: Contents, Processes and Techniques*[2]
- *The Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes*[3]
- National Historic Preservation Act, 1966
- NPS Director's Order 28: Cultural Resources Management
- Archeological Resource Protection Act (ARPA), 1979
- Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes
- Architectural Barriers Act Accessibility Standards (ABAAS)
- Architectural Barriers Act Accessibility Guidelines (ABAAG)
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)

CLR research methodology focused on the use of select documentation of known and presumed relevance, including primary and secondary sources that are readily available. Research and development of the site history, existing condition, and analysis were built upon the recently completed *Ohio & Erie Canal History and Historic Structure Assessment* (2019) and existing *Cultural Landscape Inventory* (2009) with a focus on addressing information gaps in the predecessor documents, including:

- Vegetation
- Soils
- Accessibility
- Historic photographs
- Landscape elements that fall outside the prism such as roads, natural systems, and topography
- Hydrology, including the relationship of increasing impervious groundcover to river dynamics
- Erosion of the towpath berm and prism due to river adjacency and siltation of canal structures
- Climate change-related issues
- Treatment recommendations

[2] Robert R. Page, Cathy A. Gilbert, and Susan Dolan, *A Guide to Cultural Landscape Reports: Contents, Processes, and Techniques* (Washington, DC: US Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Park Historic Structures and Cultural Landscapes Program, 1998).

[3] Charles Birnbaum and Christine Capella Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Washington, DC: US Department of the Interior, National Park Service, 1996).

Project Team Members

Prime

STRATA Architecture Inc. (STRATA), Kansas City, Missouri

STRATA managed the contract for this project and provided editorial guidance on the document.

Historic Landscape Architect

Quinn Evans (QE), Ann Arbor, Michigan

Quinn Evans provided historic landscape architectural services for this study, including development of the site history, existing condition documentation, and analysis related to the historic landscape. The historical landscape architect also developed treatment recommendations in Part 2 of this report.

Civil Engineering

SK Design Group, Inc. (SKDG), Overland Park, Kansas

SKDG provided civil engineering services related to canal structures and hydraulic conditions along the canal corridor, including existing conditions documentation and treatment recommendations (to be provided in future drafts).

Project Kickoff

Project coordination was conducted remotely in response to the Covid-19 pandemic ongoing at the time of CLR project initiation. A remote project kickoff meeting was held on September 28, 2020, to introduce the project team, confirm the study area boundary, review the project scope of work and schedule, and establish a strategy for project startup and field investigations.

Issues and Considerations Information Gathering

A series of meetings and a staff survey were conducted between December 2020 to March 2021 to identify park-wide project expectations, management issues, opportunities, and challenges to be addressed by the CLR. Issues and considerations are listed in Chapter 4 (see page 4.1).

- The project introduction workshop on December 15, 2020, provided background information on the Ohio & Erie Canal Cultural Landscape Report (CLR) workshop to CUVA park staff, including the project process, anticipated contents, and study area.
- An online survey was shared with park staff in December 2020 and January 2021 to identify potential detail areas and management issues and considerations.
- Focus group meetings for circulation and access (January 27, 2021), natural systems (February 1, 2021), canal structures (February 3, 2021), and visitor experience (February 19, 2021) identified issues and considerations related to key canal corridor topics.
- The synthesis meeting on March 25, 2021, summarized the findings of the four focus group meetings and staff survey conducted in December 2020–February 2021 and confirmed three areas along the canal corridor that are documented and evaluated at a higher level of detail in the CLR.

Background Research and Data Collection

Historical research for the CLR built upon documentation provided in the 1993 *Historic Resource Study*, 2009 *Cultural Landscape Inventory*, and 2019 *Ohio & Erie Canal History and Historic Structure Assessment*. Additional on-site research was conducted at the park archives on April 29, 2021. This was supplemented by remote research in various digitized resources, including the University Libraries and Archival Services at the University of Akron and Summit Memory, an online, collaborative project that documents the history of Summit County, Ohio. New research focused on landscape elements immediately outside the

canal prism, such as roads, vegetation, natural systems, and topography, as well as the integration of historical photographs into the site history and chronology. Landscape management and maintenance data were shared by NPS staff.

Field Investigations

QE and SKDG project staff conducted field investigations in November 2020 and April 2021 using a combination of photographs, annotated base maps, and GPS data collection. As part of the field investigations, project team members met with NPS staff on-site to discuss landscape conditions throughout the week of April 26–30, 2021.

The QE team recorded cultural landscape conditions at three scales:

- The three detail areas (Canal Exploration Center, Boston, and Peninsula) were documented in detail using field notes and photographs of all visible landscape features. Locations of key features were recorded using a submeter GPS.
- Along the canal corridor, the QE team recorded a cross-section of Towpath Trail and prism conditions at each mile marker using the Esri Collector app. Trail material and condition, adjacent vegetation, interpretive nodes, visitor experience, views, canal structures, and connections to other circulation networks were also identified using the Collector app along the length of the trail.
- Trailheads and their connection to the Towpath Trail were recorded using field notes and photographs.

Gary Urkevich, PE, PLS (SKDG), conducted field investigations focused on hydrological issues along the length of the canal corridor. Field investigations consisted of identifying issues due to drainage, locating culverts and other drainage structures, identifying safety and accessibility issues, and noting structural degradation of historic structures. Access and drainage issues at the Boston detail area were also identified.

Treatment Workshop and CLR Part 2

Recommended treatment for the study area was developed through a collaborative process involving the consulting team, Cuyahoga Valley National Park staff, NPS Interior Region 3, 4, and 5 staff, and representatives of the concurrent Denver Service Center (DSC)-led CAP project team.

Development of Part 2 began with a series of remote treatment workshops in October 2021 to confirm a proposed treatment approach and evaluate landscape treatment concepts for the overall study area and three detail areas. The overall study area was addressed in the first two sessions on October 5 and 6, 2021, which identified a treatment approach, vision, goals, and overall concept for the 22-mile-long study area, as well as specific treatment types for circulation, vegetation and hydrology, canal structures, and visitor experience along the entire canal corridor.

Treatment for the three detail areas was identified in three separate meetings on October 13, 2021 (Boston Detail Area), October 14, 2021 (Canal Exploration Center Detail Area), and October 20, 2021 (Peninsula Detail Area), focused on viable concepts specific to that location. Treatment for each of the three detail areas resulted in site-specific guidance for each location.

Preferred treatment was confirmed through additional remote calls with park and regional staff on November 15 and November 19, 2021.

Scope of Work

The CLR is organized into two parts. Part 1 contains documentation of the historic development of the study area landscape, evaluation of existing landscape condition, and analysis of integrity with identification of contributing features. Part 2 identifies an appropriate landscape treatment approach based on the *Secretary of the Interior's Standards for the Treatment of Historic Landscapes* and provides recommendations and implementation projects for treatment, management, and maintenance of historic landscape resources that are consistent with the landscape's significance, condition, and use.

- Introduction: The introduction provides the administrative context for the project. It includes a concise summary of relevant management information and historical data. It describes the project scope of work and methodology, study boundaries, summary of findings, and recommendations for future study.
- Site History: The site history provides a narrative description, chronology, and graphic illustration of the cultural landscape's changes over time. Four historic period plans illustrate the historic condition using consistent scales and graphic styles to allow for easy comparison of landscape conditions from one period to the next. The chapter also identifies the existing National Register significance of the property and describes the period(s) of significance associated with the landscape.
- Existing Condition and Analysis: This chapter documents the existing condition of all applicable landscape characteristics and features. The chapter provides an overview of landscape conditions throughout the study area by landscape characteristic, followed by a description of seven individual segments along the canal corridor and the three detail areas. Documentation is combined with a comparison of historic and existing condition to evaluate the integrity of the cultural landscape. This section also includes an evaluation of integrity for the landscape, using the seven National Register aspects of integrity.
- Treatment: The treatment chapter provides a vision and goals for long-term landscape management, identifies an appropriate treatment approach based on the *Secretary of the Interior's Standards for the Treatment of Historic Landscapes*, and provides guidelines and recommendations for implementation of the selected treatment. Treatment recommendations are provided at two scales: general treatments that can be applied to repeated typical conditions along the canal corridor, and specific treatment recommendations for the three detail areas.
- Implementation Plan: The implementation plan provides guidance for implementing treatment recommendations based on the complexity of the project and level of funding needed to move forward with the recommended treatment.

Description of Study Boundaries

Study Area Location

The study area for the cultural landscape report encompasses all features associated with the historic Ohio & Erie Canal within the park boundary and corresponds to the 22-mile study area identified in the 2009 *Cultural Landscape Inventory* and the 2019 *Ohio & Erie Canal History and Historic Structure Assessment*. Consistent with its predecessor documents, the CLR study area boundary builds on the 1978 National Register Thematic Grouping Nomination Form boundary description. As described in the 2009 Cultural Landscape Inventory:

> This current cultural landscape inventory views the canal landscape in a more holistic sense and thus the boundaries established here incorporate the entire spectrum of associated features within the 22-mile CUVA Canal Corridor, including Locks 36, 25, and 24. The establishment in the 1978 nomination of a 40-foot right-of-way along the towpath side of the canal and a 30-foot right-of-way on the opposite bank is retained here.

This delineation of the study area allows for the inclusion of the Towpath Trail and canal structures that may be located slightly outside of the 70-foot wide Historic District corridor. For example, the CLR considers the relationship between the canal's hydrological processes, the Cuyahoga River, and adjacent

land uses.

Throughout this report, “canal corridor” is used to describe the 70-foot-wide study area and associated adjacencies. Within the park, remnants of the canal are protected by the steep walls of the Cuyahoga Valley, which have deterred commercial and residential development. Until recently, the northern six miles of the canal within the park (from Rockside Route to Ohio Route 82) were “watered” from the Brecksville Diversion Dam, which diverted Cuyahoga River water north into the canal. The dam was removed in 2020; a pump anticipated to be installed in 2022 will replicate this condition. To the south of Route 82, the canal prism is “unwatered,” or no longer maintained to retain water. However, for much of its remaining length, the prism and towpath berm are discernable and retain their original configuration.

The overall study area is illustrated in Figure 1-1.

Detail Areas

Three locations within the study area are described at a higher level of detail in the existing condition, analysis, and treatment recommendations.

Canal Exploration Center

The Canal Exploration Center detail area includes the Canal Exploration Center and associated parking lot, Lock 38, the Lock 38 Spillway, the adjacent portion of the canal prism, and the riverbank to the west of the visitor center.

Boston

The Boston detail area includes the Boston Store, Lock 32 and Lock 32 Spillway, Boston Basin, the overflow parking area and adjacent drainage features, and the riverbank between I-271 and the proposed river access site on the north side of Boston Mills Road.

Peninsula

The Peninsula detail area includes Lock 29, the Lock 29 trailhead, the Peninsula Aqueduct, and the portion of Mill Street and the Cuyahoga Valley Scenic Railroad between Main Street and the trailhead. The boundary extends south to the 303 (Main Street) bridge.

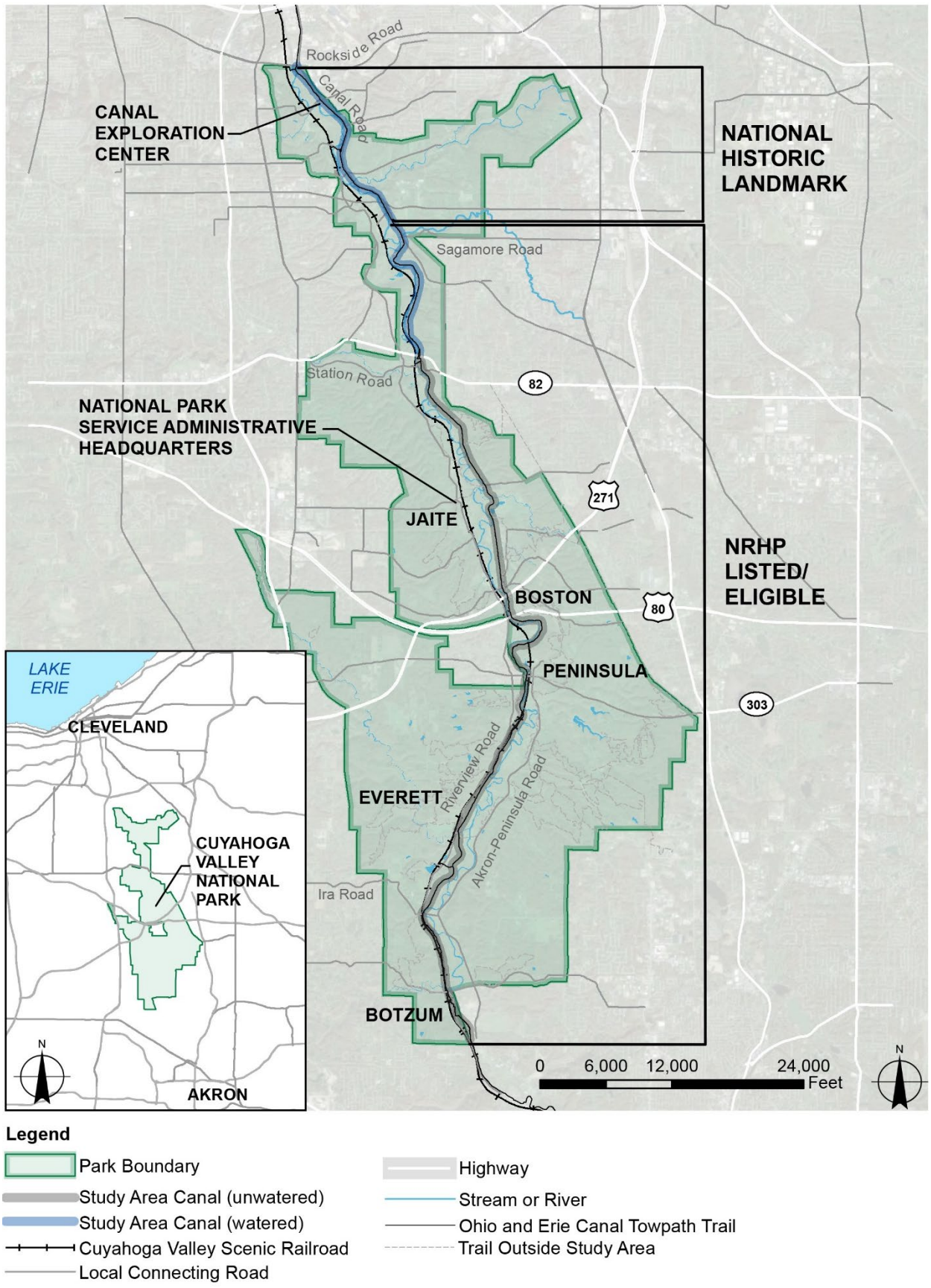


Figure 1-1: Ohio & Erie Canal study area. The entire canal corridor is listed in the National Register of Historic Places (NHRP). The northern six miles of the canal corridor is designated a National Historic Landmark.

Historical Data

Summary of National Register Status

The historical significance for the cultural landscape report is aligned with the 2009 *Cultural Landscape Inventory*, which addresses the Ohio & Erie Canal cultural landscape as a holistic entity and incorporates all features within the 22-mile canal corridor that fall within park boundaries. The entire cultural landscape is eligible for listing in the National Register of Historic Places per park concurrence on eligibility signed June 24, 2004, and SHPO concurrence on landscape eligibility signed August 31, 2004. This finding was reaffirmed by park superintendent approval of the updated 2009 CLI.

Previous designations within the park included both National Register District (16 discontiguous miles) and National Historic Landmark (4 miles embedded within the district) designations. In addition, several canal structures contribute to other historic districts within the Cuyahoga Valley or are individually listed in the National Register of Historic Places.

A 1.5-mile section of the watered canal and associated structures was designated a National Historic Landmark (NHL) in 1966. An amended nomination was written in 1975 and accepted in 1983 to expand the NHL to encompass a 4-mile section to include Lock Nos. 39, 38, 37, Tinkers Creek Aqueduct, the Lock Tender's House (Canal Exploration Center), and Alexander's (Wilson's) Mill. National Historic Landmark designation denotes the property's exceptional importance to themes of American history.[4]

Three additional canal structures were listed in the National Register of Historic Places in 1974: Lock 29 and the abutments of the Peninsula Aqueduct were included as contributing features to the Peninsula Village Historic District, and Lock 28 (Deep Lock) was designated as an individual listing. In 1979, several remaining portions of the Ohio & Erie Canal were entered in the National Register of Historic Places as a thematic resource under Criteria A and C.[5] The listing includes three segments of the canal totaling 16 miles. Areas where the canal corridor had been destroyed by modern construction were excluded from the nomination, including Lock Nos. 24, 25, and 36, Jaite Mill, and the area surrounding I-271.

Most recently, the NRHP status of the Ohio & Erie Canal within Cuyahoga Valley National Park was modified and expanded in 2004 through the *Cultural Landscapes Inventory* completed by NPS Midwest Regional Office staff. The CLI modified the period of significance to 1825–1913 and evaluated the canal corridor as a single holistic landscape. The CLI retained the general historic property boundary identified by the National Register Nomination (a 70-foot-wide corridor with 40 feet on the towpath side of the prism, and 30 feet on the berm side), but was expanded to include all canal-related resources within the park boundary, including previously excluded locks. This designation and all encompassed resources were determined to be eligible for the National Register of Historic Places in 2004 in consultation with the Ohio State Historic Preservation Office. The landscape's eligibility was reaffirmed by park superintendent approval of the updated 2009 CLI.

The current NHL documentation dates to 1983 and provides only limited descriptions of site features and history. The district incorporates the north 4 miles of the canal corridor. However, the high integrity of the cultural landscape between Lock 36 and 37 warrants consideration of expanding the NHL nomination to include the entire watered portion of the canal corridor.

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[4] Joseph S. Mendinghall, "Ohio & Erie Canal," National Historic Landmark Nomination Form (Washington, D.C.: US Department of the Interior, National Park Service Historic Sites Survey, 1983).

[5] Carol Poh Miller, "Ohio & Erie Canal District in the Cuyahoga Valley in the Cuyahoga Valley National Recreation Area," National Register of Historic Places Nomination Form (Columbus, Ohio: Ohio Historic Preservation Office, Ohio Historical Center, 1978). Criterion A is associated with events significant to broad patterns of our history. Criterion C embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components my lack individual distinction.

Summary of Significance

As multiple nominations have identified the significance and boundaries of cultural landscapes within the canal corridor, this document applies the significance statements for the *Cultural Landscape Inventory* (SHPO Consensus Determination 2004) and the National Historic Landmark Nomination (1983). Consistent with the CLI and *Ohio & Erie Canal History and Historic Structure Assessment*, this CLR holistically addresses the entire 22-mile canal corridor. Segments of the study area listed in the National Historic Landmark and National Register of Historic Places are identified on Figure 1-1.

The Ohio & Erie Canal within Cuyahoga Valley National Recreation Area (Cuyahoga Valley National Park) is eligible for the National Register of Historic Places under Criterion A (associated with events significant to broad patterns of our history) in the areas of Transportation, Commerce, Exploration/Settlement and Industry. It is also eligible under Criterion C (embodies distinctive construction, work of a master, and possesses high artistic values) in the area of Engineering. Refer to Chapter 2 for a full evaluation of significance.

Period of Significance

The cultural landscape's period of significance is 1825 to 1913, beginning with construction of the canal, which commenced in 1825, and ending with the abandonment of the canal as a navigational route due to damage from the massive 1913 flood.

Historical Summary

People have been living within the Cuyahoga Valley region for at least 12,000 years.[6] In particular, archeological sites document several settlements near the study area along the Cuyahoga River in the Late Woodland period. During this time local people took advantage of abundant natural resources, ease of travel, and fertile floodplain soils to establish permanent and semi-permanent villages on the valley bluffs and floodplain terraces. They built extensive earthen structures throughout the Ohio River Valley, all of which are spiritually important and some of which are associated with burials. Over 30 mounds have been identified in Cuyahoga County and 21 in Summit County; many more were likely present before Euro-American settlement, as in the intervening years most of these places have been damaged due to agricultural plowing, flooding, and residential and commercial development along the canal corridor.

By the mid-1700s, the Miami, Shawnee, Lenape (Delaware), Seneca, Ottawa, and Wyandotte were living in the area. The region was traversed by a network of trails, including the Portage Trail linking the Cuyahoga and Tuscarawas rivers through the north–south watershed drainage divide.[7] French posts expanded into the Cuyahoga River Valley in the mid-eighteenth century, although their primary focus was trade rather than establishing permanent settlements.[8] Other early settlers in the Cuyahoga Valley Region were Moravian missionaries led by David Zeisberger and Jonathan Heckwelder from Saxony, Germany, who rested at a temporary camp known as 'Pelgerruhe' or 'Pilgrim's Rest' on the east bank of the Cuyahoga River during the winter of 1786–1787. [9]

The colony—and later the state—of Connecticut claimed lands to the west under the terms of its 1662 charter. The state ceded most of these lands following the Revolutionary War but retained a three-million-acre parcel in northeast Ohio comprising a 120-mile strip south of Lake Erie, which became

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[6] Vergil Noble, *Report of an Archeological Survey along the Ohio & Erie Canal Towpath, Cuyahoga Valley National Recreation Area, Summit County, Ohio* (Lincoln, Nebraska: National Park Service, Midwest Archeological Center, 1988), 9.

[7] Sam Tamburro, *Cultural Landscapes Inventory- Ohio & Erie Canal* (Natural Park Service, Cuyahoga Valley National Park, 2009), 89.

[8] Col. Charles Whittlesey, *Early History of Cleveland, Ohio* (Cleveland, Ohio: Fairbanks, Benedict & Co, 1867) 131.

[9] David S. Clark, *The Moravian Mission of Pelgerruhe* (Bethlehem, PA: The Moravian Historical Society, 1940), on file at Cuyahoga Valley National Park.

known as the 'Western Reserve.' Initially, portions of the Western Reserve were distributed to Connecticut residents whose properties were burned or destroyed by the British in the Revolutionary War.[10] In 1795, the state sold the eastern portion of the Reserve to the Connecticut Land Company who in turn sold it to homesteaders migrating from the east.[11]

During this time, lands to the west of the Cuyahoga River were under Indigenous control. The U.S. government did not consider the Western Reserve part of the Northwest Territories until 1800, and therefore afforded settlers no legal or military protection; however, the people already living in the region identified the newcomers as an invasion on their traditional lands. The Northwest Indian War was waged between 1785 and 1795 in response to the colonization of Indigenous lands by Euro-American colonists. After the defeat at the Battle of Fallen Timbers in 1795, the Treaty of Greenville divested the Northwest Indian Confederation of their rights to occupy lands east and south of the Cuyahoga River, and the United States government seized control of lands west of the river by way of the Treaty of Fort Industry in 1805.[12]

Early valley settlements were established following Ohio statehood in 1803, but relied on subsistence farming, with few connections to regional markets due to the remote nature of the landscape.[13] Inspired by the success of New York's Erie Canal and recognizing the potential for Ohio's topographic and hydrological conditions to support a similar transportation route, Thomas Worthington, Governor of Ohio from 1814–1818, urged the state legislature to consider improvements that would increase Ohio's trade with New York via the Erie Canal. The state's next governor, Ethan Allen Brown, continued Worthington's mission to secure approval and funding for canal development, stating in his inaugural address, "if we would raise the character of our state by increasing industry and our resources it seems necessary to improve the internal communications, and open a cheaper way to market for the surplus produce of a large portion of our fertile country."[14]

Tasked with finding the most efficient route to connect developing Ohio with markets to the east across Lake Erie and to the south via the Mississippi River, Erie Canal engineer James Geddes began a survey of five possible canal routes in 1822.[15] The Scioto-Muskingum line was eventually selected as the general route of the Ohio & Erie Canal, following the Cuyahoga River to Lake Erie. Although the Cuyahoga summit was the highest elevation at 395 feet above Lake Erie, Geddes believed that this route would be the easiest to supply with water because of the Portage Lakes.[16]

Topography, hydrology, and population density were the deciding factors for the final Ohio & Erie Canal layout.[17] The crucial engineering challenge for the selected route was Licking Summit, the highest point on the proposed route and the divide between the Scioto and Muskingum watersheds; ultimately, an

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[10] Tamburro, *Cultural Landscapes Inventory- Ohio & Erie Canal,* 43.

[11] Western Reserve Historical Society, "History of the Western Reserve," accessed May 2021, https://www.wrhs.org/about/wrhshistory/#:~:text=What%20is%twentiethe%20Western%20Reserve,continent%20to%twentiethe%20Pacific%20Ocean.

[12] National Park Service, 'The Land of Refuge- Cuyahoga National Park,' accessed May 2021, https://www.nps.gov/cuva/planyourvisit/the-land-of-refuge.htm.

[13] Boston Township, "Our Town, a Brief History," accessed April 2021, https://www.bostontownship.org/ourtown.phtml#:~:text=%22Peninsula%22%20was%20incorporated%20in%201859,saloons%20served%20boisterous%20canal%20crowds.

[14] Still, "Ethan Allen Brown," 23-24; cited in Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 18.

[15] Harlan Unrau, Nick Scrattish, and Llyn Conrad, *Historic Structure Report- Ohio & Erie Canal* (National Park Service, Cuyahoga Valley National Park, 1984), 20.

[16] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 198-19.

[17] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 202; citing Scheiber, *Ohio Canal Era*, 22 and Woods, *Ohio's Grand Canal*, 5.

elaborate "deep cut" solution was endorsed to bridge the canal over the summit, with water drawn from Portage Lakes via a series of feeders to ensure adequate water supply.[18]

The passage of the Canal Bill in 1825 allowed the commission to assure funds and hire the corps of engineers needed to design and construct the canal.[19] Immediately after the final route of the Ohio & Erie Canal was determined, resident engineer William H. Price prepared plat maps, surveys, plans, and profiles of the line and locks from Portage Summit to Cleveland.[20] Land acquisition proceeded quickly. The 1825 Canal Bill give the canal commissioners eminent domain over all lands needed for canal construction. However, many owners recognized the value that the canal would bring to nearby property and sold the required strips of their land willingly.[21]

Groundbreaking for canal construction commenced on July 4, 1825. Construction of the canal was done entirely through private contractors. The north end of the canal (between Akron and Cleveland) was completed in late 1827; the southern end was finally finished in October 1832. At this time, it was considered complete and fully navigable. The completed canal extended 308.14 miles from Lake Erie at Cleveland to the Ohio River at Portsmouth. Within the Cuyahoga Valley, the canal extended 38 miles, rising 395 feet above lake level via 44 locks.[22]

Promise of the canal's economic boon fueled speculative development along its route. Akron was established at a strategic portage location along the canal's route in 1825; by 1850, the town boasted 3,206 residents. Cleveland's population rose from 606 in 1820 to 6,071 in 1840.[23] The increase in population and wealth in Cuyahoga Valley during this period greatly influenced development of the built environment.[24] Within the study area, town centers in Boston, Peninsula, Brecksville, Independence Township, and Everett grew and adapted to serve a growing workforce and in response to the trade route established by the canal. Both Boston and Peninsula emerged as boatbuilding centers during the canal era, while also providing mills, warehouses, taverns, stores, and lodging to travelers and tradesmen along the canal.[25]

The Ohio & Erie Canal had a short-lived heyday. The beginning of its decline can be traced to the opening of the Pennsylvania and Ohio (P&O)/Mahoning Canal from Akron to Youngstown in 1840, which ended the Ohio–Erie monopoly on transporting goods through the region.[26] Despite such competition from other canal and waterway systems, arguably the most important factor in the slow demise of the Ohio & Erie Canal was the rapid development of railroads. During the 1850s, the superior flexibility of railroads led to a boom in rail line construction to reach production centers throughout the state.[27] Railroads offered greater speed of travel and were not subject to the seasonal limitations of canals, which were not

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[18] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 22.

[19] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 38.

[20] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 25; citing Kilbourne, *Public Documents,* 181; Woods, *Ohio's Grand Canal,* 10.

[21] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 27; citing Finn, "The Ohio Canals," 13.

[22] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 27; citing Scheiber, *Ohio Canal Era*, 50-52.

[23] Tamburro, *Cultural Landscapes Inventory- Ohio & Erie Canal*, 43; and Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 41.

[24] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 42.

[25] Tamburro, *Cultural Landscapes Inventory- Ohio & Erie Canal*, 44.

[26] Scheiber, *Ohio Canal Era*, 215-217; Woods, *Ohio's Grand Canal*, 25. Via Heberling Associates, Inc., "Ohio & Erie Canal History and Historic Structure Assessment." Alexandria, Pennsylvania: Friends of the Crooked River and Cuyahoga Valley National Park, 2019, 44.

[27] Scheiber, *Ohio Canal Era,* 290. Via Heberling Associates, Inc., "Ohio & Erie Canal History and Historic Structure Assessment." Historic Structure Report. Cuyahoga Valley National Park, (45) 2019.

only closed during the winter months, but subject to traffic interruptions due to low water, floods, or other natural occurrences.[28] The Cuyahoga Valley Rail line was constructed between 1873 and 1880, providing an alternative to canal transportation through the valley. Railway stations were constructed in Independence, Boston, Peninsula, Everett, Ira, and Botzum.[29]

To more effectively compete with the expanding railroad system, the Board of Public Works undertook an extensive program of repairs to the canals in 1850, which included rebuilding 19 locks on the Ohio & Erie Canal. A $2 million modernization program was put forward the following year, which proposed widening and deepening the canals. However, public confidence in the canal system was quickly eroding. Droughts in 1851 and 1856 slowed and impeded travel, and flood events in 1858 and 1860 caused extensive damage throughout the canal.[30]

Performance of the canal during this period was briefly bolstered by the Civil War, which brought a bustle of activity as the canal was utilized to transport grain and other freight. Boatyards at Akron, Peninsula, and Boston were full, and private industry expanded to support traffic on the canal. Traffic again declined following the war. Freight companies disbanded and the syndicate surrendered their lease of the Ohio & Erie Canal on December 1, 1877.[31] After a brief period of receivership, the Board of Public Works regained management of the canal in 1878. The condition of the canal continued to deteriorate throughout the 1880s as traffic declined with the exhaustion of coal deposits near Akron, the primary commodity transported by the canal. Still, the state attempted to keep the canal functional. In 1887, the upper courses of the lock walls were altered and new gates installed. For the first time, brick, cement, and concrete were used for lock repairs. However, insufficient appropriations necessitated patching the structures rather than the reconstruction that would have been required to maintain the features long-term.[32]

In 1903, the Board of Public Works succeeded in proposing a comprehensive rehabilitation program for the canal. The primary drivers of this program were to adapt the canals to use by modern boat traffic and to maintain the flow of water for the numerous waterpower leases held by private companies. Major rehabilitation of the northern division occurred from 1905–1909.[33] During 1905–1906, the canal prism was dredged between Akron and Cleveland, and all canal locks (except recently-repaired Lock 29) in the Cuyahoga Valley were repaired and replaced. Remaining features including one culvert, two sluices, and the Galley Run Mudcatcher were addressed in 1906–1909.[34] In contrast to previous repair efforts, concrete was used as the primary building material.[35] These upgrades kept the canal serviceable for its growing number of industrial users, including the Jaite Paper Mill, founded in 1905 and constructed using the same concrete technology used to repair the canal.[36]

A devastating flood in March of 1913 caused heavy damage throughout the Ohio & Erie Canal and ended the use of the canal for freight transportation. A 16-mile section of the canal from the Portage Summit in

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[28] Scheiber, *Ohio Canal Era,* 320-327. Via Heberling Associates, Inc., "Ohio & Erie Canal History and Historic Structure Assessment." Historic Structure Report. Cuyahoga Valley National Park, (45) 2019.

[29] Tamburro, *Cultural Landscapes Inventory- Ohio & Erie Canal.*

[30] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 45.

[31] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47; citing Bogart, *Internal Improvements and the State Debt*, 115; Woods, *Ohio's Grand Canal*, 57.

[32] Tamburro, *Cultural Landscapes Inventory- Ohio & Erie Canal* 61.

[33] Tamburro, *Cultural Landscapes Inventory- Ohio & Erie Canal* 61.

[34] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48; citing James Dillow Robinson, "Canal Maintenance and Recollections," *Towpaths 17* (1979), 9-10.

[35] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48.

[36] National Park Service, "Jaite, a Paper Mill and Company Town," accessed May 2021, https://www.nps.gov/articles/000/jaite-a-paper-mill-and-company-town.htm

Akron north to Brecksville was destroyed entirely. After the flood, the state repaired and kept the northern portion of the canal open between Cleveland and Brecksville. Finally, in July 1929, this section was abandoned for transportation purposes. Maintenance of this section continued to provide water for the state's hydraulic leases along the route, including the lease to American Steel and Wire Company, in effect from 1913 to 1992.

The long decline of the Ohio & Erie Canal also saw glimmers of the early preservation movement. The canal had been utilized for recreational purposes since the 1890s,[37] and the creation of Metropolitan Parks Districts in Cuyahoga County in 1917 and Summit County in 1921 cemented this land use in the Cuyahoga Valley. Over time, the canal corridor was managed in different ways in different areas: some portions were managed for recreation, others redeveloped, and much of the canal was abandoned and allowed to revert to nature.[38]

In the 1960s, grassroots preservation groups came together in support of preserving the canal and its associated cultural history. A 1.5-mile section of the canal including three locks, an aqueduct, and two structures was designated as a National Historic Landmark in 1966.[39] This was later expanded to a 4-mile section that included Lock Nos. 37, 38, 39, Tinkers Creek Aqueduct, the Lock Tender's House (Canal Exploration Center), and Alexander's (Wilson's) Mill, nominated to the National Register of Historic Places in 1975 and listed in 1983.[40]

Throughout the 1960s and 1970s, preservation groups fought to preserve the historic character of the Cuyahoga Valley. Many of these groups also united in support of creating a large public park in the valley. The mission united Cleveland and Akron Metropolitan Parks Departments and multiple community leaders to form the Cuyahoga Valley Committee.[41] The committee garnered public support for a unified park between the cities of Cleveland and Akron and ultimately joined forces with the Cuyahoga Valley Association (CVA) to pursue national park status and funding.[42] In late 1973, the Cuyahoga Valley Park Foundation (CVPF) was established to consolidate efforts to gain national park status for the proposed Cuyahoga Valley Park.[43] On December 28, 1974, President Gerald Ford signed P.L. 93-555, which formally established Cuyahoga Valley National Recreation Area (CVNRA) as a unit of the National Park Service.[44] Assessment of Ohio & Erie Canal initiated with a Denver Service Center (DSC) study team in 1975. The team surveyed the canal from Cleveland to Portsmouth and concluded that the limited remains of the canal did not satisfy NPS national significance criteria for historic resources. However, they recommended that the Valley View National Historic Landmark Boundary (Lock Nos. 39 through 37) be extended three miles south through Pinery Narrows, where the canal flowed into the Cuyahoga River.[45]

Planning for conversion of the Ohio and Erie Towpath into a recreational trail began in the 1980s.[46] As part of the design process, the Midwest Archeological Center conducted archeological studies along the canal corridor between 1987 and 1990, leading to the discovery of three pre-contact and eleven post-

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[37] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47.

[38] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 51; citing Woods, *Ohio's Grand Canal*, 74-75.

[39] Mendinghall, "Ohio & Erie Canal NHL," 2.

[40] Tamburro, *Cultural Landscapes Inventory- Ohio & Erie Canal,* 40.

[41] Cockrell, *Administrative History*, 33.

[42] Cockrell, *Administrative History*, 34.

[43] Cockrell, *Administrative History*, 40.

[44] Cockrell, *Administrative History,* 127.

[45] Cockrell, *Administrative History*, 131.

[46] Ron Cockrell, *Administrative History,* 265.

contact archeological sites.[47] In 1990 a groundbreaking ceremony celebrated the beginning of the three-year restoration and development of the multi-purpose trail and additional funds were allocated to continue the engineering, design, and construction of the trail. In 1991, the Station Road Bridge, a critical trail link, was rehabilitated, and construction continued including wayside exhibits.[48] The Towpath Trail formally opened on October 15, 1993.[49]

The Jaite Mill Historic District was added to the National Register of Historic Places in 1979, and in 1984 the mill ceased all operations. In 1985, the National Park Service purchased the property and converted the company town buildings into park headquarters. In 1992, arson destroyed the Jaite Mill structures, and in 2006 they were completely removed and site remediation began. The National Park Service is slowly returning this industrial site to the riparian forest ecosystem that existed before the mill was built.[50]

Riverbank stabilization projects occurred throughout the 2000s in efforts to reduce Towpath Trail erosion as well as sediment and nutrient loads traveling from the Cuyahoga River watershed to the Great Lakes. This work was undertaken in coordination with engineering and ecology firms, the US Army Corps of Engineers, and the US Environmental Protection Agency (EPA).

Today, Cuyahoga Valley National Park is focused on numerous projects to improve environmental quality and visitor experience within the park. The park provides an invaluable resource to residents of the surrounding communities and offers an exciting look into the history of the valley and region.

Treatment Summary

This cultural landscape report applies an overall treatment approach of rehabilitation to the Ohio & Erie Canal cultural landscape. This approach provides an umbrella that allows for the preservation or restoration of canal structures while allowing for rehabilitation of vegetation patterns to reinforce period character and new additions to the landscape to support visitor experience and interpretation.

Recommended treatment for the study area is presented at two scales: overall guidelines provide broad-scale treatment guidance and treatment types applicable to the entire study area. Specific concepts are presented for each of the three detail areas, supported by individual treatment tasks to achieve the desired future condition of each detail area.

Overall Study Area Treatment Summary

The preferred treatment concept balances increasing visibility of canal components throughout the 22-mile-long study area with changing ecological and hydrological processes within the watershed.

In the “unwatered” sections of the canal (Segments 1-5), the preferred treatment concept emphasizes improving understanding of the function and spatial relationships of canal components. Concrete and stone structures are recommended to be preserved, while earthen structures (including the prism and basins) will be rehabilitated to enhance their visibility. The treatment proposes retaining water within the prism where possible, particularly to support creation of vernal pools. Water retained within the prism will not only evoke the historic character of the landscape, but also provide valuable amphibian habitat and support stormwater retention within the landscape. In locations where the prism will not support water retention, the treatment concept recommends management of invasive species to improve visibility of the canal prism and berm and promote ecosystem health.

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[47] Noble, *Final Report on a Phased Archeological Survey Along the Ohio & Erie Canal Towpath*, i.

[48] Ron Cockrell, *Administrative History,* 266, 270.

[49] Rails to Trails Conservancy, “Ohio's Ohio & Erie Canalway Towpath Trail” (2016), accessed May 2021, https://www.railstotrails.org/trailblog/2016/june/09/ohios-ohio-erie-canalway-towpath-trail/

[50] National Park Service, “Jaite Mill History.”

Due to changing climate and hydrological conditions, there are limited locations within the "unwatered" portions of the canal where movement of the Cuyahoga River will continue to erode the historic berm and towpath route. To address this threat, the treatment concept defines priorities for protection of canal resources threatened by natural hydrological processes and proposes a long-term strategy to identify locations where the river may be allowed to move within its floodplain.

Chip seal is proposed as the preferred surface for the Towpath Trail throughout the study area to support maintenance and recreational use while visually representing the historic character of the towpath. Where the berm associated with the towpath is missing, the trail will follow its historic route over a boardwalk. An alternate color chip seal surface is recommended to identify portions of the trail that deviate from the historic route of the towpath.

Where canal components are no longer extant (Segments 1 and 4), the treatment concept proposes visualizing or referencing missing canal features and relationships through interpretive landscape elements. Ecosystem health will be prioritized for the vegetation and hydrologic conditions in these locations.

Within the "watered" section of the canal (Segment 6 and 7), the treatment concept proposes updating the National Historic Landmark nomination to address the entire cultural landscape from Lock 36 to Lock 39. The historic condition of the landscape will be emphasized in these locations to enhance integrity, condition, and interpretation. Concrete and stone structures including the locks, spillways, waste structures, and mudcatcher will be rehabilitated to support the planned installation of a pump to actively water this section of the canal prism. Rehabilitation of earthen structures, including the berm and prism, is also recommended. This work should include protecting the berm in locations where the Cuyahoga River is causing erosion and destabilization.

Similar to the "unwatered" portions of the canal corridor, the Towpath Trail surface will represent the historic character of the towpath while providing a firm, stable surface for visitor and maintenance use. Historic vegetation patterns will also be represented within these segments, while accommodating trees along the margins of the corridor for shade.

Canal Exploration Center Detail Area Treatment Summary

The treatment concept for the Canal Exploration Center Detail Area increases capacity for outdoor programming, addresses pedestrian and bicycle traffic congestion at Lock 38, improves universal access throughout the detail area, and identifies strategies to expand interpretation of the canal and its relationship with the river.

In addition to preserving or restoring contributing features and aspects, the treatment recommends reestablishing or representing missing spatial patterns and features to enhance the character of the detail area and help visitors to understand its historic function. Where new features are needed to support visitor use, a simple, utilitarian palette is proposed to be compatible with the vernacular landscape and draw from the existing successful visual language of boxes and barrels.

A new bypass route is proposed around the west side of the Canal Exploration Center to reduce conflicts between through traffic and visitors experiencing interpretive elements or lock demonstrations between the building and Lock 38. To further reduce congestion at the lock during demonstrations, the treatment concept proposes expanding viewing areas on both sides of the lock, with a pedestrian bridge providing an accessible route to the east side of the lock. The Towpath Trail would be extended along the west side of the canal prism under Hillside Road to provide a secondary route for pedestrians continuing north from the detail area; this trail would reconnect with pedestrian and bike traffic from the bypass route north of Hillside Road.

Program spaces are proposed throughout the detail area to support a variety of users, group sizes, and interpretive discussions. The existing picnic area south of the Canal Exploration Center will be enhanced with shade trees as well as universally accessible picnic tables. An additional picnic area with a small pavilion is proposed west of the parking lot, adjacent to an area where vegetation management provides

improved views to the canal and connects to new trails along the river edge. Immediately west of the Canal Exploration Center, a new space incorporating the detail area's graphic identity will support outdoor gathering as well as educational programming utilizing the natural topographic features as an informal amphitheater.

Boston Detail Area Treatment Summary

Treatment for the Boston Detail Area provides for rehabilitation of the canal-era cultural landscape while acknowledging the many layers of history and periods of development within the village, including historic features and aspects dating outside of the canal period of significance. The concept also recommends simplifying circulation and reducing congestion through new routes that evoke historic circulation patterns and expand interpretation opportunities.

Central to the Boston Detail Area concept is reestablishing visual and spatial connections between Lock 32 and the village. The treatment recommends removing invasive vegetation that blocks views between the lock and Boston Mills Road and adding interpretive features to support enhanced understanding of the boat yard and dry dock that occupied this central location within the village. Stormwater diverted into the canal prism from a nearby drainage channel would not only support the historic character of the detail area, but also improve resilience of the landscape during storm events.

Contributing features and aspects should be preserved, including buildings that contribute to the Boston Mills Historic District company town era, which extends beyond the period of significance for the canal corridor. Lock 32 and its spillway would be restored to support water diverted into the canal prism.

The treatment concept proposes reestablishing the historic routes of Cuyahoga Avenue and South Street to clarify circulation southwest of the Boston Store and integration of a new pedestrian bridge connecting the Boston Mills Visitor Center into the detail area. The recommended circulation treatment would retain limited-mobility parking near Boston Mills Road, add universally accessible pedestrian connections to the Boston Store and picnic areas along the Cuyahoga River, and provide opportunities to interpret canal-era commerce.

Peninsula Detail Area Treatment Summary

The Peninsula Detail Area treatment concept identifies opportunities to reduce congestion at Lock 29, improve visibility of canal components, and clarify physical relationships between the canal, grist mill, railroad, and the Village of Peninsula.

The treatment concept proposes to reduce pedestrian and bicycle conflicts at Lock 29 by providing a secondary route following the historic alignment of the aqueduct. The new route would also enhance interpretation within the lock and improve visitor understanding of the canal components present within during the period of significance. Additional circulation considerations are addressed at the parking area, comfort station, and railroad depot. The treatment concept recommends expanding the walkway on the west side of the railroad tracks and improving the barrier between pedestrians and trains. A new sidewalk is proposed on the south side of the parking area to provide a safe pedestrian route between the Lock 29 trailhead and comfort station.

The treatment concept recommends preserving contributing features and aspects including the canal prism, Lock 29, the Peninsula Aqueduct ruin, the mill ruin, and the railroad depot. To improve visibility and understanding of the relationship between canal components, the concept proposes a vegetation management strategy to highlight the historic location of the prism. A small gathering space is proposed within the prism near the southern end of the detail area to interpret missing features and further reduce congestion at Lock 29. Finally, the concept considers opportunities to enhance interpretation of the grist mill site by stabilizing the mill ruins and establishing a hiking trail and overlook through the site.



02 Site History



Lock 39, 1912 (CVNP slide 7.1-88a).

02 Site History

This chapter presents an overview of the physical evolution of the Ohio & Erie Canal cultural landscape. It begins with a statement of significance describing the historical importance and current National Register status of the canal corridor, followed by a chronological overview of the physical evolution of the landscape, organized by six time periods:

- Indigenous Occupation and Use before 1656
- Euro-American Arrivals, 1656–1822
- Surveys and Construction, 1822–1840
- The Long Decline, 1840–1929
- Canal Abandonment and Reuse, 1929–1974
- Protection Efforts, 1974–Present

Each time period is described in a contextual narrative and a summary of the physical appearance of the canal corridor, followed by a chronology of landscape change. The site history builds on the 2009 *Ohio & Erie Canal Cultural Landscape Inventory* and 2019 *Ohio & Erie Canal History and Historic Structure Assessment*, as well as research conducted at the Cuyahoga Valley National Park archives. The site history and chronology emphasize physical changes to the canal corridor landscape, with a summary of socioeconomic and political events that influenced landscape change.

Evaluation of Significance

Current National Register Status

The significance statement for the Cultural Landscape Report is aligned with the 2009 *Cultural Landscape Inventory*, which addressed the Ohio & Erie Canal cultural landscape as a holistic entity and incorporates all features within the 22-mile canal corridor falling within park boundaries. The entire cultural landscape is eligible for listing in the National Register of Historic Places per park concurrence on June 24, 2004, with a determination of eligibility. This was followed by SHPO signature concurring on August 31, 2004. Further evaluation in the updated 2009 *Cultural Landscape Inventory* was approved by the park superintendent.

Previous designations within the park were addressed both by a National Register District (16 discontiguous miles) and a National Historic Landmark (4 miles embedded within the district). In addition, several canal structures contribute to other historic districts within the valley or are individually listed in the National Register of Historic Places.

A 1.5-mile section of the watered canal and associated structures was listed as a National Historic Landmark (NHL) in 1966. An amended nomination was written in 1975 and accepted in 1983 to expand the NHL to encompass a 4-mile section that includes Lock Nos. 39, 38, 37, Tinkers Creek Aqueduct, the Lock Tender's House (Canal Exploration Center), and Alexander's (Wilson's) Mill. National Historic Landmark status denotes the property's exceptional importance to themes of American history.[1]

Three additional canal structures were listed in the National Register of Historic Places in 1974: Lock 29 and the abutments of the Peninsula Aqueduct were included as contributing features to the Peninsula Village Historic District, and Lock 28 (Deep Lock) was designated as an individual listing. In 1979, several remaining portions of the Ohio & Erie Canal were entered in the National Register of Historic Places as a thematic resource under Criteria A and C. The listing includes three segments of the canal totaling 16

[1] Joseph S. Mendinghall, "Ohio & Erie Canal," National Historic Landmark Nomination Form (Washington, D.C.: US Department of the Interior, National Park Service Historic Sites Survey, 1983).

miles. The following structures contribute to the National Register of Historic Places thematic resource listing:

- Lock Nos. 39 through 37
- Lock Nos. 35 through 26
- Tinkers Creek Aqueduct
- Peninsula Feeder
- Peninsula Aqueduct
- Furnace Run Aqueduct
- Jim Brown's Tavern
- Alexander's (Wilson's) Mill
- Lock Tender's House

The 1979 National Register District boundary included a 40-foot right of way along the towpath side of the canal and a 30-foot right of way on the opposite side. Areas where the canal corridor had been destroyed by modern construction were excluded from the nomination, including Lock Nos. 24, 25, and 36, Jaite Mill, and the underpass at I-271.

Most recently, the NRHP status of the Ohio & Erie Canal within Cuyahoga Valley National Park was modified and expanded in 2004 through the *Cultural Landscape Inventory* completed by NPS Midwest Regional Office staff. The CLI modified the period of significance to 1825–1913 and evaluated the canal corridor as a single holistic landscape. The CLI retained the general historic property boundary identified by the National Register Nomination (a 70-foot-wide corridor with 40 feet on the towpath side of the prism, and 30 feet on the opposite side), but was expanded to include all canal-related resources within the park boundary, including previously excluded locks. This designation and all encompassed resources were determined to be eligible for the National Register of Historic Places in 2004 in consultation with the Ohio State Historic Preservation Office. The landscape's eligibility was reaffirmed by park superintendent approval of the updated 2009 CLI.[2]

In addition to these various designations, several studies have addressed the canal corridor's integrity. The first of these was a Suitability/Feasibility Study, which found the canal to be lacking in integrity despite its overall national significance. However, several individual segments were identified as "outstanding examples of well-preserved canal and related facilities."[3] The 1993 Ohio & Erie Canal Corridor Study "A Route to Prosperity" revisited the canal's integrity with a broader view of canal resources and deemed the corridor eligible for nomination as a National Heritage Corridor.[4] This designation was applied in 1996 under the Omnibus Parks Bill.

Summary of Significance

As multiple nominations have identified the significance and boundaries of cultural landscapes within the canal corridor, this document presents the significance statements for the *Cultural Landscape Inventory* (SHPO Consensus Determination 2004) the National Historic Landmark (1983). This CLR concurs with the significance statement in the *Cultural Landscape Inventory*.

The Ohio & Erie Canal within Cuyahoga Valley National Park is eligible for the National Register of Historic Places under Criterion A (associated with events significant to broad patterns of our history) in the areas of Transportation, Commerce, Exploration/Settlement, and Industry. It is also eligible under

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[2] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory* (Cuyahoga Valley National Park: National Park Service, 2009).

[3] National Park Service, *Proposed Ohio & Erie Canal, Ohio: Suitability/Feasibility Study* (Denver: Denver Service Center, National Park Service, October 1975).

[4] National Park Service, *A Route to Prosperity: The Ohio & Erie Canal Corridor* (Omaha, Nebraska: National Park Service, Midwest Region, August 1993).

Criterion C (embodies distinctive construction, work of a master, or possesses high artistic values) in the area of Engineering. The statement of significance from the *Cultural Landscape Inventory* reads:

> The Ohio & Erie Canal, a 308-mile inland waterway, linked Lake Erie at Cleveland with the Ohio River at Portsmouth. The canal provided the first viable means of transportation to develop the interior of the state of Ohio and the then western frontier of the nation. The advent of the canal, beginning with the opening of the northern division in 1827, provided the catalyst for the development of the Cuyahoga Valley. Assuming a primary role in northeast Ohio's transportation network, the canal served as the major route in the valley for several decades. The Cuyahoga Valley and the canal reached the apex of their importance as a transportation conduit between 1827 and 1840. Interregional competition from the proliferation of new canal routes during the 1840s and the construction of Ohio's railroad system in the 1850s precipitated the demise of the canal. By 1860, it was clear that canals could not compete against the greater flexibility and speed of the railroads. The unprecedented devastation wrought by the March 1913 flood, therefore, only accelerated the despise of Ohio's unpopular canal system. The canal was literally destroyed from Akron north to Brecksville. The segment from Brecksville north to Cleveland was considered salvageable and, although abandoned as a transportation route, was retained as an industrial water supply.
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> Approximately 22 miles of the Ohio & Erie Canal right-of-way passes through the Cuyahoga Valley National Park. Generally following the path of the Cuyahoga River between Akron and Cleveland, the canal bisects the recreation area along its north-south axis. Extant components of the canal include the remains of numerous historic structures, such as locks and aqueducts, linked by the canal prism and Towpath Trail.
>
> The Cuyahoga Valley section of the Ohio & Erie Canal possesses exceptional significance as an illustration of local historical heritage. The towns of Valley View (formerly Independence township), Brecksville, Boston, Peninsula, and the unincorporated village of Everett all owe their origin to the opening of the waterway that gave emigrants from the east reason to settle there. The Ohio and Erie Canal, with its locks, towpath and other physical features, is the major historic resource of the Cuyahoga Valley.[5]

National Register Criteria and Areas of Significance for Evaluation

Transportation

The Ohio & Erie Canal is nationally significant under Criterion A in the area of Transportation as one of America's most important nineteenth-century canals, operating as a navigation system from 1827 to 1913. The remote location of the Cuyahoga Valley in the early 1800s limited trade and market access for its small number of Euro-American settlers. Despite abundant natural resources, fertile soils, and excellent mill sites, Ohio residents were challenged by poor roads and long river or lake navigation to eastern markets either by Lake Erie to the north or the Ohio River to the south. Inspired by the success of New York's Erie Canal, which connected Lake Erie to the Hudson River, Ohio politicians garnered support for a similar transportation route that would increase Ohio's trade with New York. The Cuyahoga and Tuscarawas river valleys provided adequate water supply and topographic conditions for the new route, which was constructed between 1825 and 1832. Following its completion, the canal provided a 308-mile-long inland waterway between the Great Lakes and the Gulf of Mexico and was quickly established as a critical transportation corridor within the regional economic network.

Commerce

Under Criterion A, the canal corridor possesses national significance in the area of Commerce. The Ohio & Erie Canal drove the establishment of a market economy in Ohio by providing an economical means of

[5] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 39-41.

trade and transport that supported labor specialization, economies of scale, and the growth of profitable commerce. The completed canal provided a source of raw materials and agricultural produce for eastern markets—in particular, coal, wool, timber, and dairy products—as well as a ready market for manufactured goods from the coasts, creating an interrelated regional economy.

Exploration-Settlement

The Ohio & Erie Canal is also nationally significant under Criterion A in the area of Exploration-Settlement. The expansion of commerce and associated prosperous canal settlements led by trade along the Ohio & Erie Canal attracted new migrants and immigrants to the area. The increase in population and wealth in Cuyahoga Valley during this period greatly influenced development of the built environment. Akron, Everett, Peninsula, Boston, Independence Township, and Cleveland grew dramatically due to their proximity to the canal route. Population growth increased significantly in the counties through which the canal ran, by 70,000 in the 1820s and 100,000 in the 1830s.[6]

Industry

Finally, the Ohio & Erie Canal meets Criterion A in the area of Industry. Along with a growing population, prosperous trade along the Ohio & Erie Canal encouraged new industries and markets to develop in the small towns and cities along the canal corridor. Within the study area, Boston and Peninsula were canal villages that supported trade along the route through boat construction and repair, hotels, taverns, stores, quarries, mills, wool factories, wagon manufacturing, and tanneries. Nearby Cleveland and Akron became nationwide leaders in shipping and production of wheat, grains, iron, steel, machinery, and other goods.

Engineering

The Ohio & Erie Canal is nationally significant under Criterion C as a major work of canal engineers David S. Bates, William H. Price, and Nathan S. Roberts, who brought extensive experience with the earlier Erie Canal in New York to the Ohio project. The canal was an impressive engineering achievement extending over 308.14 miles and consisting of 126 locks, providing a total rise and fall of 1,207 feet, as well as 5 guard locks, 14 aqueducts, 203 culverts, 8 dams, and 6 feeder dams linking the sparsely-settled frontier region of Ohio with eastern markets.

Period of Significance

The cultural landscape's period of significance is 1825 to 1913, beginning with construction of the canal, which commenced in 1825, and ending with abandonment of the canal as a navigational route due to the massive 1913 flood.[7]

National Historic Landmark

The NHL highlights the integrity of the northern end of the canal and its ability to represent historic conditions. Note that the nomination's statement of significance was not updated when the landmark was expanded to a four-mile section of the canal corridor.

> The Ohio & Erie Canal which united Cleveland and Portsmouth was completed in 1832, 12 years before its sister canal, the Miami and Erie which linked Cincinnati and Toledo. These two state-built canals were the main lines of a 1000-mile State- and privately-owned canal network that connected Lake Erie to the Ohio River and gave access to New York, Pennsylvania, and Indiana canals. This system brought rapid growth in population, industry, and commerce to Ohio.

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[6] Heberling Associates, Inc., *Ohio & Erie Canal History and Historic Structure Assessment (*Alexandria, Pennsylvania: Friends of the Crooked River and Cuyahoga Valley National Park, 2019), 42.

[7] Note that the last section of the Ohio & Erie Canal (outside of the study area) was abandoned for navigational purposes in 1929.

One of the more interesting and better-preserved parts of the canal is a 1.5-mile long section located in Valley View Village south of Cleveland. This section contains water and includes Locks 37, 38 and 39 the first two of which have gates that appear to be workable, and the aqueduct over Tinkers Creek. Two buildings dating from the period of canal use remain—a mile at Lock 37 and a house, once a combined store and inn, at Lock 38. Taken together these features illustrate the use of the Ohio & Erie Canal at a period in American history when canals were essential to the Nation's growth.[8]

Site Chronology

Indigenous Occupation and Use, before 1656

This section summarizes the findings of archeological studies and utilizes archeological names associated with material cultures identified therein. These names do not reflect naming practices used by the cultures themselves.

The archeological record suggests that people have been living within the Cuyahoga Valley region since the Paleo-Indian period (11,000–8,000 BCE), drawn by an abundance of caribou and other large game moving through the valley as the Wisconsin Glacier retreated.[9] In northeast Ohio, Paleoindian sites typically occur in elevated locations along river valleys, but also within upland bogs and wetlands, lake and stream margins, gravel knolls, and floodplain bottoms. During this period, post-glacial spruce, pine, and early deciduous forests characterized the landscape.[10] The valley created a wildlife migration corridor that attracted plentiful game and provided relative ease of travel for people living within the region. [11]

The beginning of the Archaic period coincides with establishment of the eastern hardwood forest within the region, which occurred around 8,000 BCE. An increasingly diversified hunting and gathering economy (including introduction of the atlatl) supported small groups of semi-nomadic people in the region. Known Archaic-period sites in northeast Ohio suggest large, multi-family basecamps with smaller single-function sites. People primarily hunted white-tailed deer and elk; use of other species including wolf, rodents, birds, fish, turtles, and shellfish is also documented during this period. Seeds were processed using pestles, manos, metates, or other stone tools. As cultivation of plants expanded toward the end of this period, larger and more numerous villages appeared, suggesting increased population density and more permanent settlements. Larger and more sedentary villages were accompanied by initial construction of mounds and earthworks within the region. [12]

The Woodland Period, between 2,500 and 1,100 years ago, saw the rise of Adena (Early Woodland, 500 BCE–100 CE) and later Hopewell (Middle Woodland, 100 CE–500 CE) material traditions throughout the region. People used wide-ranging trade and information networks, expanded horticultural practices, and constructed expansive earthwork complexes.[13] During the summer, residents of the region typically

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[8] Mendinghall, "Ohio & Erie Canal," National Historic Landmark Nomination Form, 3.

[9] "Timeline of American Indian Cultures," Cuyahoga Valley National Park, National Park Service. https://www.nps.gov/articles/000/timeline-of-american-indian-cultures.htm; and "Discover the Paleoindian People, "Cuyahoga People, "Cuyahoga Valley National Park, National Park Service. https://www.nps.gov/articles/000/discover-the-paleoindian-people.htm

[10] Fred A. Finney, *Calumet, Canal, and Cuyahoga: An Archeological Overview and Assessment of the Cuyahoga Valley National Park* (St. Paul, Minnesota and St. Joseph, Illinois: Upper Midwest Archeology, Contract Completion Report 22, 2002), 17.

[11] Vergil Noble, *Report of an Archeological Survey along the Ohio & Erie Canal Towpath, Cuyahoga Valley National Recreation Area, Summit County, Ohio* (Lincoln, Nebraska: National Park Service, Midwest Archeological Center, 1988), 9; and National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 89-90.

[12] Finney, *Calumet, Canal, and Cuyahoga*, 18-20.

[13] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath*, 12-13.

occupied larger, more densely populated villages, and dispersed into smaller groups during the winter. Woodland period villages and use sites have been documented on upland bluffs, floodplain terraces, and hilltops, particularly around large river systems including the Cuyahoga River and its tributaries. Villages were composed of circular buildings and were occasionally surrounded by defensive features. People constructed mounds and other earthworks at significant locations, frequently associated with burials. Villages and mounds associated with the Middle Woodland period are documented at numerous sites adjacent to the study area, most notably near the current town of Everett.[14]

As the most dramatic remaining features associated with Indigenous people within the river valley, mounds were also frequently investigated and destroyed by Euro-American settlers and archeologists in more recent centuries. Whittlesey reported one mound that may date to the Early Woodland Period just north of the present-day park boundary.[15] The 1914 *Archeological Atlas of Ohio* reported one mound in Independence Township out of a total of 30 documented in Cuyahoga County.[16] In Summit County, two mounds were recorded in Boston Township and six in neighboring Northampton Township out of a total of 21 mounds in the county overall.[17] Mounds were documented in the Jaite area in 1825 and again in 1965. In the early 1960s, a large mound near the Jaite Paper Mill was excavated and revealed numerous burials and artifacts.[18] By 1968, only 11 of the initial 45 mounds documented in 1914 remained intact for study due to agriculture, construction, and looting.[19]

Between 1,100 and 400 years ago, occupation and use patterns within the Cuyahoga River Valley shifted to palisaded villages oriented toward intensive food production, particularly corn. Described by archeologists as the Whittlesey tradition, people within the region at this time tended to live on high plateaus and ridges with easy access to lake and river resources.[20] Over time, the Muskingum, Mahoning, and Cuyahoga War trails developed, which fulfilled important roles as nort–south routes through major river valleys in the region.[21] Other Indigenous peoples who occupied the Cuyahoga Valley area throughout this period include the Erie peoples, also known as the Nation of the Cat, who were defeated by the Iroquois and incorporated into other Iroquoian tribes by 1656.[22]

Chronology

11,000–8,000 BCE	Paleo Indian Period occupation of Cuyahoga Valley indicated in archeological record.[23]
8,000–500 BCE	Archaic Period archeological sites in the Cuyahoga Valley indicate seasonal camps for hunting and gathering.[24]

[14] Finney, *Calumet, Canal, and Cuyahoga*, 22-25.

[15] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath*, 12.

[16] William C. Mills, *Archeological Atlas of Ohio* (Columbus, Ohio: Fred J. Heer, Ohio State Archeological and Historical Society, 1914), 18.

[17] Mills, *Archeological Atlas of Ohio*, 77.

[18] Joseph D. Jesensky, *Archeology of Cuyahoga Valley-Jaite Area Notes,* Cuyahoga Valley Historical Research (Akron, OH: 1965), on file at Cuyahoga Valley National Park.

[19] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 95.

[20] Finney, *Calumet, Canal, and Cuyahoga*, 28-32.

[21] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath,* 9; and National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory,* 89-90.

[22] Encyclopedia Britannica, "Erie People," accessed March 2021, https://www.britannica.com/topic/Erie-people.

[23] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath*, 10.

[24] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath*, 11.

500 BCE–100 CE	Early Woodland Period and rise of Adena culture in the Ohio area, which included complex mortuary earthwork practices.[25]
100–500 CE	Middle Woodland Period and Hopewell culture (archeological terms) in Ohio area, with increased interregional communication and trade.[26]
500–900 CE	Late Woodland Period (archeological term), permanent settlement of the Middle Cuyahoga Valley and extensive agricultural development.[27]
900–1650 CE	Whittlesey Complex (archeological term) marked by seasonal and permanent fortifications as well as developments in ceramic and stone tools.[28]
1570–1600 CE	Iroquois Confederacy (Five Nations), self-name Haudenosaunee, formed.[29]
1656 CE	Erie peoples (Nation of the Cat) defeated by Iroquois in Cuyahoga Valley region.[30]

Euro-American Arrivals, 1656-1822

The timing of initial Euro-American contact with Indigenous peoples in what would become northeastern Ohio coincides with a period of severe disruption for the Indigenous population. Algonquian-speaking groups were plagued by disease and upheaval as they urgently moved west ahead of Euro-American and European immigrant settlement and trade that pushed the Iroquois into new territory.[31] Starting in the seventeenth century, exploration of the Ohio region by European colonists led to conflicts between different cultural groups including the French, Dutch, British, Iroquois Confederacy and Algonquin-speaking groups.[32]

By the mid-eighteenth century, the Cuyahoga Valley region was utilized by Miami, Shawnee, Lenape (Delaware), Seneca, Ottawa, and Wyandotte peoples for hunting and transportation, some settling in villages and seasonal camps to cultivate maize, beans, squash, and pumpkins. The region was traversed by a network of trails, including the Portage Trail linking the Cuyahoga and Tuscarawas rivers through the north–south watershed drainage divide (see Figure 2-2). The route was rich in resources and provided relatively easy travel due to the short 7-mile portage between the rivers.[33]

Euro-American settlement in the Cuyahoga Valley region was limited prior to the mid-eighteenth century. Although the French had explored the region, their primary focus was trade rather than establishing permanent settlements. In 1755, the French had a trading house on the Cuyahoga River opposite Tinkers Creek (see Figure 2-1 and Figure 2-3), and by 1760 both the French and British had trading operations in

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[25] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath*, 12.

[26] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath*, 13.

[27] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath*, 13.

[28] Noble, *Archeological Survey along the Ohio & Erie Canal Towpath*, 14.

[29] Encyclopedia Britannica, "Iroquois Confederacy," accessed March 2021, https://www.britannica.com/topic/Iroquois-Confederacy.

[30] Encyclopedia Britannica, "Erie People," accessed March 2021, https://www.britannica.com/topic/Erie-people.

[31] Richard White, *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650-1815* (New York: Cambridge University Press, 1991), 1-23.

[32] Daniel P. Barr, *Unconquered: The Iroquois League at War in Colonial America* (Westport, CT: Greenwood Publishing Group, 2006.)

[33] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory,* 89.

the area.[34] Historic records document trade between Indigenous and French peoples during this period: in 1811, while on a surveying mission, John Melish noted old apple trees approximately 660 feet north of the town of Boston that were suggested to mark the location of an old French trading post.[35] Construction activities and archeological studies in the Jaite area have revealed numerous Indigenous burial mounds, some with French artifacts dating to roughly 1640. [36]

Other early settlers in the Cuyahoga Valley Region were Moravian missionaries David Zeisberger and Jonathan Heckwelder from Saxony, Germany, along with 95 (primarily Delaware) Christian people from Tuscawaras County. In the winter of 1786–1787, the group established the Moravian Mission known as 'Pelgerruhe' or 'Pilgrim's Rest' on the east bank of the Cuyahoga River below the mouth of Tinkers Creek. The mission was built as a temporary camp for the group and was composed of nine domestic structures and outbuildings. [37] They later established a permanent settlement along the Thames River in southern Ontario.[38] While camped along the Cuyahoga River, Heckwelder noted the presence of Ottawa villages at Tinkers Creek and Boston as well as Lenape villages near Akron along the Portage Path and Sand Run.[39]



Figure 2-1: A portion of the Lewis Evans Map of the N. American Colonies, 1755. The Cuyahoga River is identified in blue (Whittlesey, Early History of Cleveland, Ohio).

[34] Whittlesey, *Early History of Cleveland, Ohio*, 131.

[35] Brecksville Historical Society, "A Reminiscent History of Brecksville 1811-1961," on file at Cuyahoga Valley Historical Research, 1961, 1.

[36] Jesensky, "Archeology of Cuyahoga Valley-Jaite Area Notes."

[37] David S. Clark, *The Moravian Mission of Pelgerruhe* (Bethlehem, PA: The Moravian Historical Society, 1940).

[38] "Pilgerruh Panel," Cuyahoga Valley National Park, National Park Service. https://www.nps.gov/places/000/pilgerruh-panel.htm

[39] National Park Service, "The Land of Refuge- Cuyahoga National Park," accessed March 2021, https://www.nps.gov/cuva/planyourvisit/the-land-of-refuge.htm.

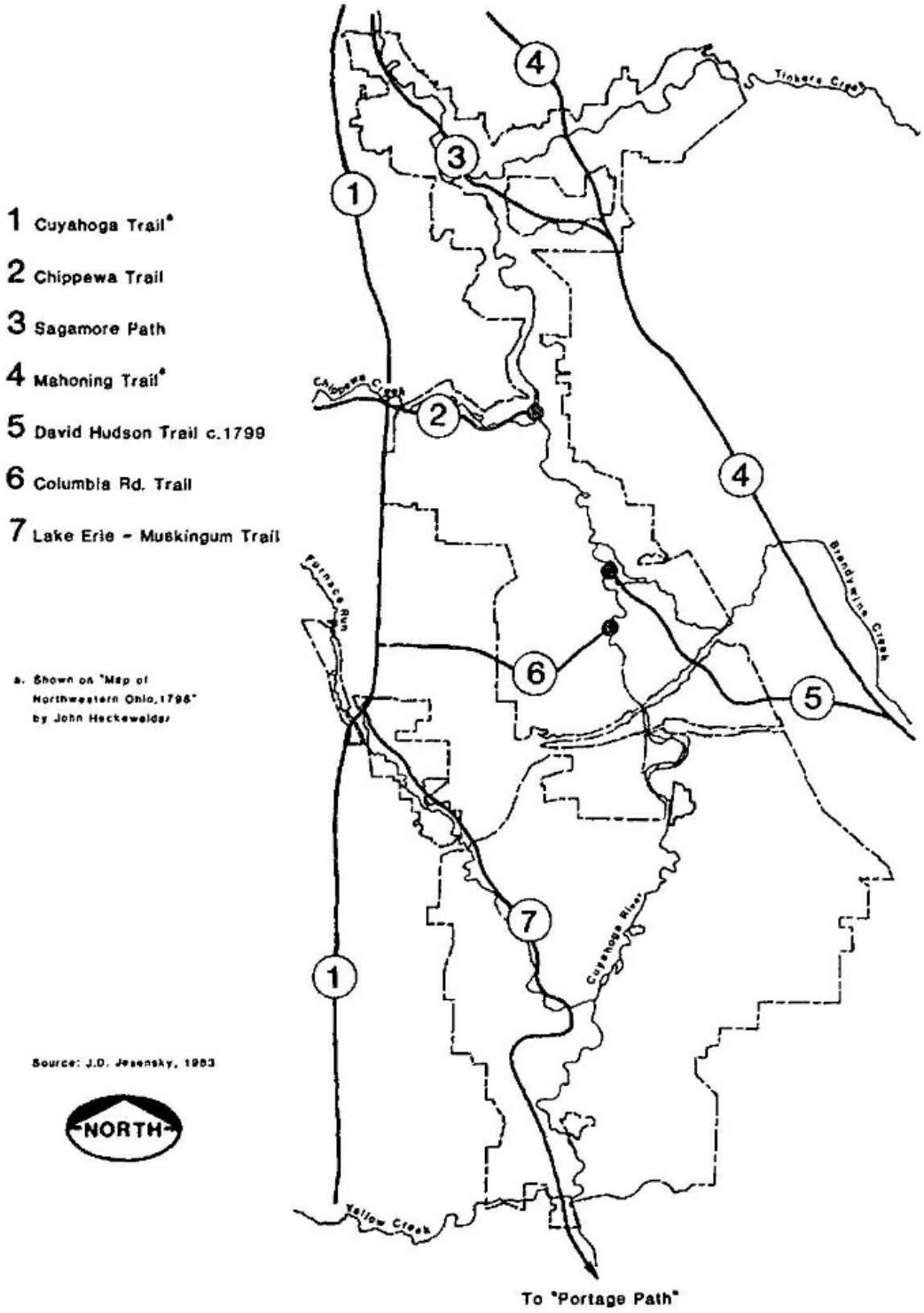


Figure 2-2: Historic trail routes through the Cuyahoga Valley (CVNRA Trail Plan [1985]).

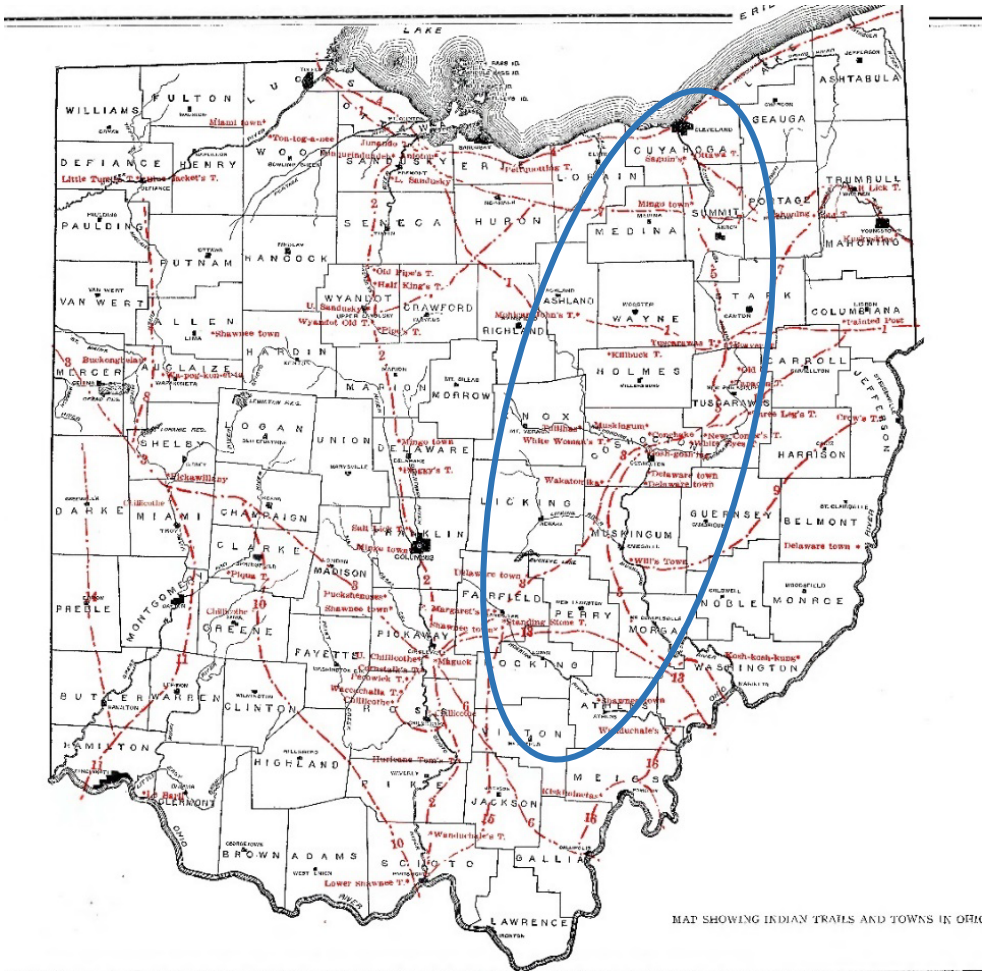


Figure 2-3: Indian Trails and Towns in Ohio, 1914. The Cuyahoga/Tuscawaras corridor is identified in blue (*Ohio Archeological Atlas*).

Following the American Revolutionary War, Euro-American interest in the Ohio River Valley increased. In a letter to the Marquis de Chastellieux on October 12, 1783, George Washington expressed his hope that a direct and affordable route from Ohio to the East would bring a bounty of materials and products to the market.[40] On a 1786–87 map of Virginia, Thomas Jefferson proposed a canal linking the Cuyahoga and Ohio Rivers.[41]

The colony—and later the state—of Connecticut claimed lands to the west under the terms of its 1662 charter. The state ceded most of these lands following the Revolutionary War but retained a three-million-acre parcel in northeast Ohio comprising a 120-mile strip south of Lake Erie, which became known as the "Western Reserve" (see Figure 2.4). Initially, portions of the Western Reserve were distributed to Connecticut residents whose properties were burned or destroyed by the British in the Revolutionary War. In 1786, nearly 2,000 Connecticut residents were given 500,000 acres of land in the western portion of the reserve along Lake Erie as recompense for war damages.[42]

[40] Chester E. Finn, "The Ohio Canals: Public Enterprise on the Frontier," Vol. LI. 1, (Columbus, Ohio: The Ohio Historical Society, 1942), 3.

[41] Finn, "The Ohio Canals: Public Enterprise on the Frontier," 4.

[42] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 43.

In 1795, the state sold the eastern portion of the Reserve to the Connecticut Land Company, who in turn sold it to homesteaders migrating from the east.[43] Following the sale, the Connecticut Land Company sent General Moses Cleaveland to survey the land and lay out townships. While surveying the reserve for the Connecticut Land Company, members of the surveying team kept journals that describe the densely wooded shores of Lake Erie: "The day before we started from Cuyahoga, we discovered a bear swimming across the river. Poeter and myself jumped into a canoe, and paddled after him, while another man with a gun went up the shore. But there was such a noise and hallooing that the bear swam back and escaped. Munson caught a rattle snake, which we broiled and ate."[44] The surveyors traveled as far as possible by river before continuing on foot or with packhorses through the forested landscape. There were also significant tracts of swampland, which reduced the potential arable land of the Western Reserve.[45]

The future locations of Boston, Peninsula, and Independence Township (Canal Exploration Center) were also documented in journals from the 1797 surveys.[46] The future site of Independence Township was surveyed by Nathan Redfield on September 6, 1797. Redfield also surveyed the future site of the Canal Exploration Center as a part of Township 6, Range 12, noting the land as 'middling good' with 'gentle topography.'[47]

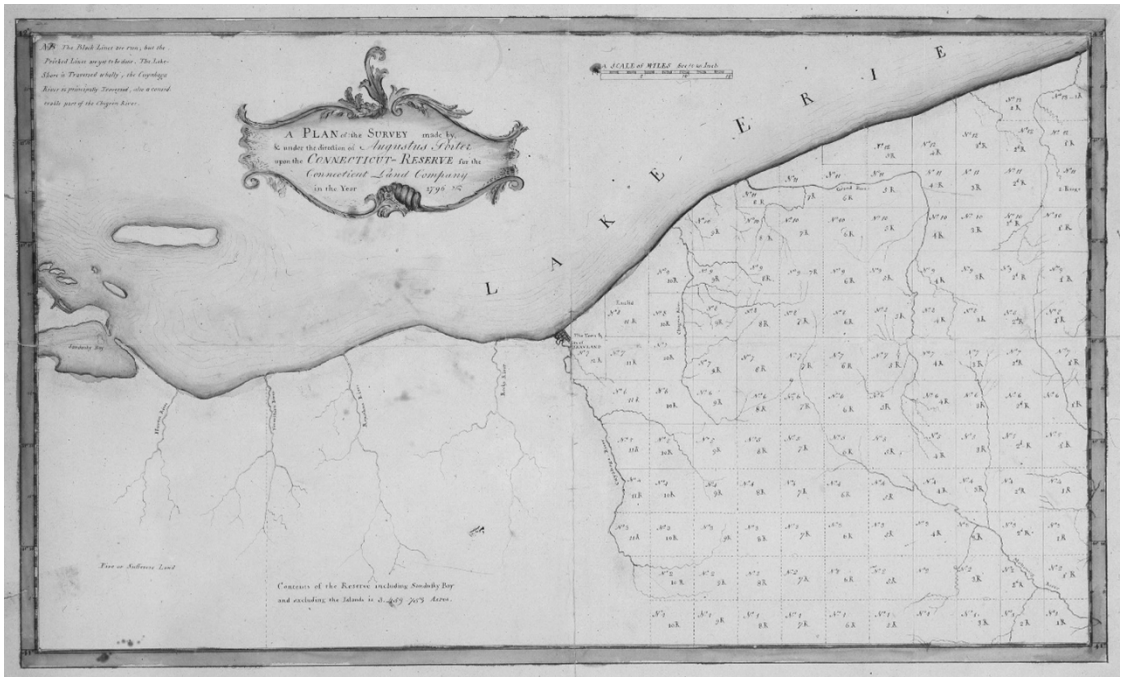


Figure 2-4: Western Reserve townships to the east of the Cuyahoga River, 1796 (Connecticut Land Company).

During this time, lands to the west of the Cuyahoga River were under Indigenous control. The U.S. government did not consider the Western Reserve part of the Northwest Territories until 1800, and therefore afforded settlers no legal or military protection; however, the people already living in the region identified the newcomers as an invasion on their traditional lands. The Northwest Indian War was waged between 1785 and 1795 in response to the colonization of Indigenous lands by Euro-American colonists.

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[43] Western Reserve Historical Society, "History of the Western Reserve," accessed May 2021, https://www.wrhs.org/about/wrhshistory/#:~:text=What%20is%twentiethe%20Western%20Reserve,continent%20to%twentiethe%20Pacific%20Ocean.

[44] Whittlesey, *Early History of Cleveland, Ohio*, 221; citing John Milton Holley's Journals (1796).

[45] Whittlesey, *Early History of Cleveland, Ohio*, 259.

[46] Whittlesey, *Early History of Cleveland, Ohio*, 297, citing "Statement of Amzi Atwater Relating to the Surveys of 1797", Made in August 1850.

[47] Ronald W. Johnson and Paul Newman, *Historic Structure Report: Adaptive Restoration, Historic Structure 125, and Lock 38, Ohio & Erie Canal* (Valley View, Ohio: Cuyahoga Valley National Recreation Area, 1984), 10.

After defeat at the Battle of Fallen Timbers, the Northwest Indian Confederation, consisting of leaders from Wyandotte, Delaware, Shawnee, Ottawa, Ojibwa, Potawatomi, and Miami peoples, signed the Treaty of Greenville in 1795.[48] The Treaty divested them of their rights to occupy lands east and south of the Cuyahoga River, and the United States government seized control of lands west of the river by way of the Treaty of Fort Industry in 1805.[49]

At the onset of the 1800s, the Cuyahoga Valley was mostly forested. A 1796 description of vegetation in the area reported "hemlock, pine, [American] beech and oak" occurring on the ridges, with "chestnut, white oak, [red] maple, black oak, cucumber [magnolia], walnut, pepperage [black gum' and white wood [tuliptree or basswood]" on gently sloping to level upland areas. "Red elm, cherry, crab apple, plumb [wild plum], and thorn brush [hawthorn] grew on bottomlands and along creeks."[50] Breaks in the mixed-deciduous forest had been made by small subsistence farmers who utilized a trade and barter economy; agricultural opportunities within the valley were limited by its steep slopes and unstable soils.[51] Residents of the valley grew staples including wheat, corn, and potatoes, supplemented by pork, beef, mutton, wild game, and specialty crops such as tobacco, onions, turnips, and cabbage.[52] Maple syrup, honey, and hickory nuts were gathered from the surrounding landscape.[53]

Early valley settlements were established following Ohio statehood in 1803, including Independence Township (1808) and Brecksville Township (1811) in Cuyahoga County, and Northfield, Boston (1811), and Wheatfield (later Bath) townships in Summit County. Euro-American settlers arriving in the early 1800s included Johnathan Hale of Glastonbury, Connecticut, who took over his parcel after improvements were made by Abraham Miller, who had squatted on the land the year prior; Hale assisted Miller in resettling on a nearby plot.[54] Alfred Wolcott, Samuel Ewart, and John Teale arrived in what would become Boston Township in 1806 and constructed a cabin at the site of the present-day cemetery.[55]

Any goods traveling through the valley relied on horse teams using rough roads or river navigation, limiting the economic potential of the region. John Melish, a Scotsman reporting on the Western Reserve in 1811, wrote that the eight miles of roadway through Boston Township along the Cuyahoga River was "the worst I had yet seen in America."[56] Peninsula, officially settled in 1818 on a peninsula in the Cuyahoga River, included an excellent mill site to process raw materials but, like other towns in the valley, lacked access to regional markets.[57] Independence Township, which was quite isolated in the early 1800s

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[48] Michael Ray, "The Treaty of Greenville," Encyclopedia Britannica, accessed May 2021, https://www.britannica.com/event/Treaty-of-Greenville.

[49] National Park Service, "The Land of Refuge- Cuyahoga National Park," accessed May 2021, https://www.nps.gov/cuva/planyourvisit/the-land-of-refuge.htm.

[50] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory,* 92; citing Mosure-Fok and Syrakis, "Technical Report for the Cuyahoga River Valley Park Study," 1974-1975.

[51] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment,* 40.

[52] "History of Farming in the Cuyahoga Valley," undated, on file at Cuyahoga Valley National Park archives, Container 6, Folder 13.

[53] Frank Wilcox and Arthur Horrocks, *A Reminiscent History of Brecksville* (Brecksville, Ohio: Brecksville Historical Society, 1961), 4-5.

[54] Ron Cockrell, *A Green Shrouded Miracle: The Administrative History of Cuyahoga Valley National Recreation Area, Ohio* (National Park Service, Midwest Regional Office, 1992), 10.

[55] Boston Township, "Our Town, a Brief History," accessed April 2021, https://www.bostontownship.org/ourtown.phtml#:~:text=%22Peninsula%22%20was%20incorporated%20in%201859,saloons%20served%20boisterous%20canal%20crowds.

[56] Wilcox, *A Reminiscent History of Brecksville,* 1.

[57] National Park Service, "Peninsula Village Historic District: A National Register of Historic Places Travel Itinerary," Ohio & Erie Canal National Heritage Corridor, accessed May 2021, https://www.nps.gov/nr/travel/ohioeriecanal/pen.htm; and Robert Hunker and John J. Grabowski, "An Historical

and experienced population decline between 1820 and 1830, experienced a significant boom during the canal heyday.

Chronology

1786–1787	Pelgerruhe Moravian Mission built along the Cuyahoga River[58]
1795	Treaty of Greenville signed and Indigenous peoples cede rights to occupy land east of Cuyahoga River.[59]
1796–1797	"Western Reserve" surveyed by the Connecticut Land Company. Boston and Peninsula included as existing places of settlement.[60]
1800	Connecticut ceded control over the Western Reserve to the federal government.
1807	Cuyahoga County officially established.[61]
January 15, 1811	Boston Township officially organized.[62]
1814	Independence Township officially formed.[63]
1814–1818	Ohio Governor Thomas Worthington urged approval of infrastructure improvements, focusing on canal development.[64]
1818	Town of Peninsula established.[65]
1822	Williams Committee Report resulted in a bill that approves funding for canal surveys.[66]

Surveys and Construction, 1822–1840

Canal corridor landscape changes from 1822 to 1840 are illustrated on drawing HP-1 (see page 2.15). Canal construction is described in detail in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment*, and portions of this narrative are quoted from the predecessor document, as indicated.

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and Tourist Guide to Peninsula and the Ohio Canal," Ohio Canal Sesquicentennial Commission, 1974, on file at Cuyahoga Valley National Park, Container 6, Folder 3.

[58] National Park Service, "The Land of Refuge- Cuyahoga National Park," accessed March 2021, https://www.nps.gov/cuva/planyourvisit/the-land-of-refuge.htm.

[59] Ray, "The Treaty of Greenville."

[60] Whittlesey, *Early History of Cleveland, Ohio*, 259.

[61] Wilcox, *A Reminiscent History of Brecksville*, 3.

[62] Boston Township, "Our Town, a Brief History."

[63] Encyclopedia of Cleveland History, "Independence," Case Western Reserve University, accessed April 2021, https://case.edu/ech/articles/i/independence.

[64] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 18.

[65] National Park Service, "Peninsula Village Historic District: A National Register of Historic Places Travel Itinerary."

[66] Harlan Unrau, Nick Scrattish, and Llyn Conrad, *Historic Structure Report- Ohio & Erie Canal* (National Park Service, Cuyahoga Valley National Park, 1984), 15.

As Euro-American settlement increased in the northeastern Ohio region, support for transportation and infrastructure improvements grew. One early attempt to improve waterborne transportation in northeastern Ohio was the "Cuyahoga and Muskingum Navigation" scheme, which intended to clear the Cuyahoga and Tuscarawas river channels of logs and trees and make the portage between them passable for loaded wagons. In 1807, the State of Ohio sanctioned a lottery to raise needed funds; however, fewer than a quarter of the tickets were sold, and the lottery never occurred.[67] Shortly thereafter, the War of 1812 delayed proposed federal infrastructure programs, leaving states to self-organize following the war. New York led the way with plans for the Erie Canal, connecting Lake Erie and the west to the Hudson River and eastern markets.[68]

Inspired by the success of New York's Erie Canal and recognizing the potential for Ohio's topographic and hydrological conditions to support a similar transportation route, Thomas Worthington, Governor of Ohio from 1814–1818, urged the state legislature to consider improvements that would increase Ohio's trade with New York via the Erie Canal. The state's next governor, Ethan Allen Brown, continued Worthington's mission to secure approval and funding for canal development, stating in his inaugural address, "if we would raise the character of our state by increasing industry and our resources it seems necessary to improve the internal communications, and open a cheaper way to market for the surplus produce of a large portion of our fertile country."[69]

Regional jealousies about the location of the canal—and therefore the communities that would receive the most direct economic benefits—were a significant roadblock for the canal project. To minimize these disagreements, Brown's proposals were vague enough to stimulate interest in the project without triggering concern over its ultimate route. The Ohio legislature approved a special committee in 1821 to study the issue; one of the commission's first decisions was that the canal should pass through as many settled regions of the state as possible.[70] In 1822, a bill was enacted to survey potential canal routes.[71]

Tasked with finding the most efficient route to connect developing Ohio with markets to the east across Lake Erie and to the south via the Mississippi River, Erie Canal engineer James Geddes began his survey of five possible canal routes in 1822 (see Figure 2.5).[72] Between April and December of 1822, Geddes examined over 900 miles and took the level of around 800 miles. Geddes surveyed all five routes, but only conducted careful instrument surveys of two: one extending from the Scioto Valley northward across the Scioto–Sandusky portage and then proceeding down to the lake, and the other from the Scioto eastward to the upper Muskingum River and then north to Lake Erie by either the Black or Cuyahoga rivers.[73] The Scioto–Muskingum line was eventually selected as the general route of the Ohio & Erie Canal, following the Cuyahoga River to Lake Erie. Although the Cuyahoga summit was the highest elevation at 395 feet above Lake Erie, Geddes believed that this route would be the easiest to supply with water because of the Portage Lakes.[74]

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[67] Whittlesey, *Early History of Cleveland, Ohio*, 420; Crisfield Johnson, *History of Cuyahoga County, Ohio* (Philadelphia: D.W. Ensign, and Co., 1879), 54; William H. Perrin, *History of Summit County, Ohio* (Chicago: Baskin and Battey, 1881), 322; and Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 17.

[68] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 17.

[69] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 18; citing Still, "Ethan Allen Brown," 23-24.

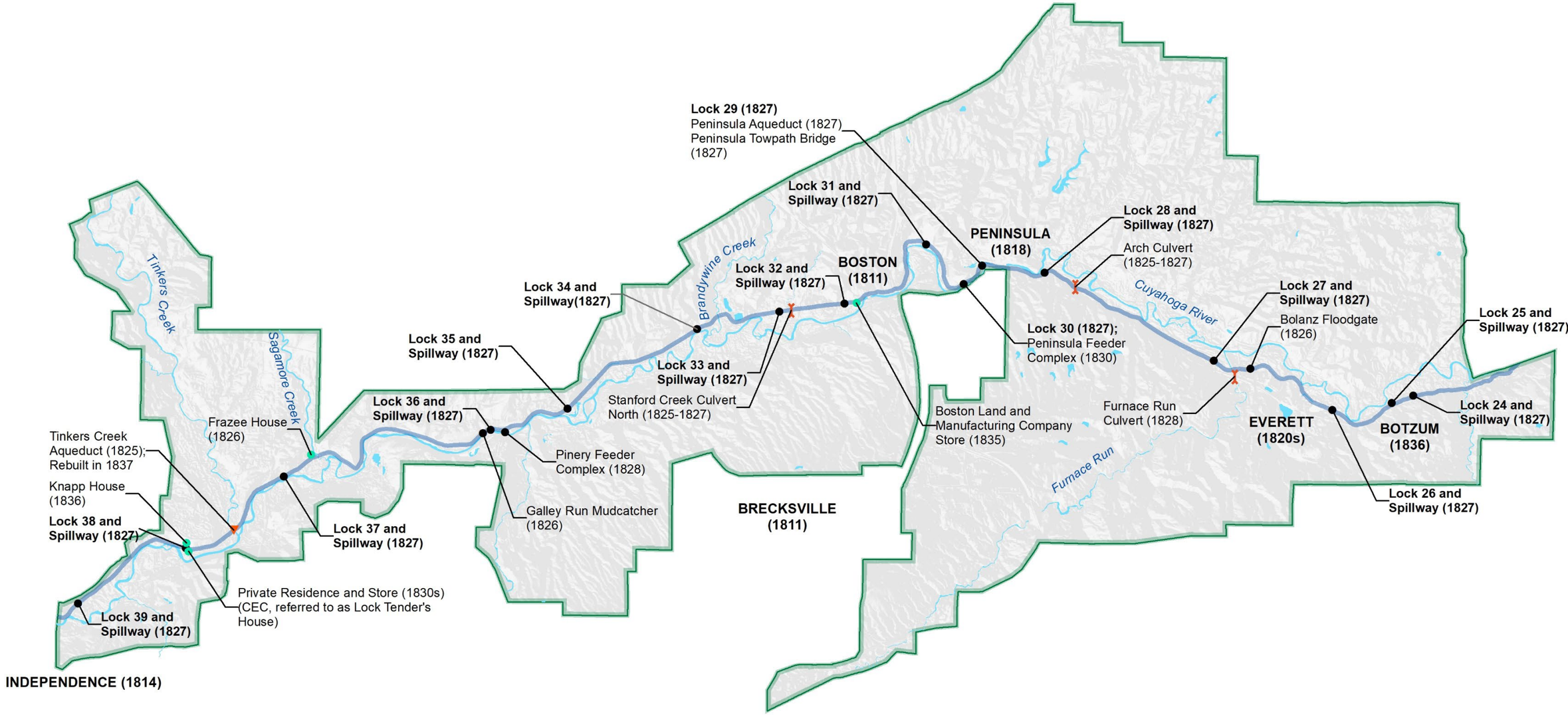
[70] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 20.

[71] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 15.

[72] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 20.

[73] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 18.

[74] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 198-19



0 3,000 6,000 12,000 Feet

1 inch = 6,000 feet

Legend

- CVNP Boundary (2021)
- River/Stream (2021)
- Ohio and Erie Canal (constructed 1825-1827)
- Lock, Waste Structure, or Feeder
- Key buildings along canal corridor
- Aqueduct
- Culvert
- **BOSTON (1811)** Villages along the canal corridor (founded date)

Sources

1. Park boundary data and water data from National Park Service, Cuyahoga Valley National Park
2. SKDG Canal Conditions spreadsheet, 2021
3. Ohio and Erie Canal Historic Structures Assessment, Herbling Associates, 2019
4. Historic Structures Report, Adaptive Restoration, Historic Structure125, Johnson and Newman, 1984
5. William H. Knapp House National Register Nomination Form, Miller, 1979
6. Map of Summit County, Ohio, Paul, 1856; canal alignment
7. Drawing by Quinn Evans, ArcMap 10.8

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Surveys and Construction 1822-1840 Historic Period Plan

October 2022

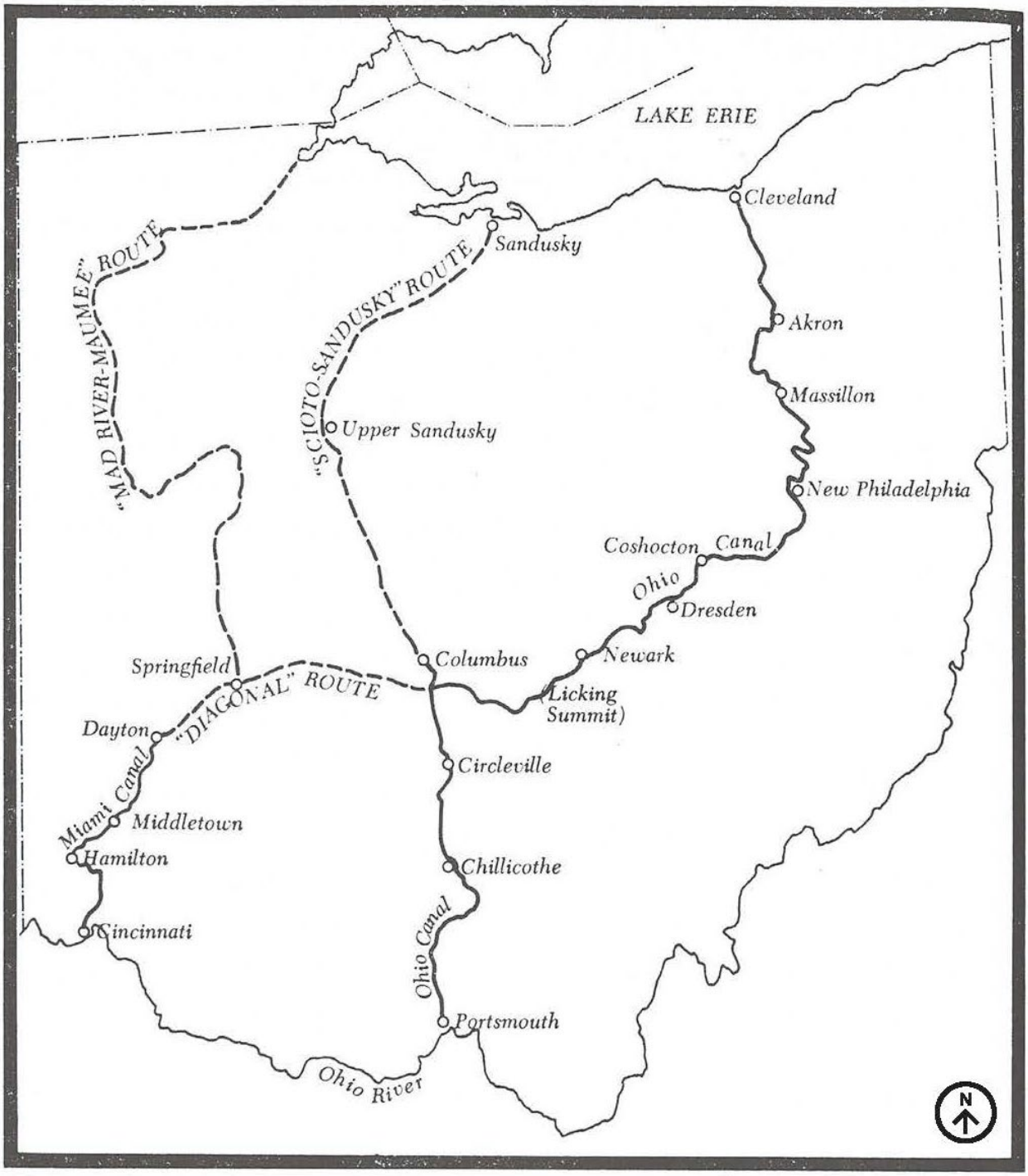


Figure 2-5: Canal routes surveyed, 1822–25, and approved, 1825 (Scheiber, *Ohio Canal Era*).

In their January 3, 1823, annual report, the Board of Canal Commissioners observed that based on Geddes's surveys, any of the five proposed routes could be successful for the future canal; therefore, funding was provided for additional surveys along each route. [75] Following the initial surveys, Geddes returned to aid in the completion of the Erie Canal and commissioners Kelley and Williams followed to learn the fundamentals of canal engineering and construction, which they would apply to the construction of the Ohio & Erie Canal.[76]

Topography, hydrology, and population density were the deciding factors for the final Ohio & Erie Canal layout. To win over the western part of the state, a second canal was proposed between Cincinnati, Dayton, and Toledo, to be constructed at a later date.[77] The crucial engineering challenge for the selected route was Licking Summit, the highest point on the proposed route and the divide between the Scioto and Muskingum watersheds; ultimately, an elaborate "deep cut" solution was endorsed to bridge the canal over the summit, with water drawn from Portage Lakes via a series of feeders to ensure adequate water supply.[78]

The passage of the Canal Bill in 1825 allowed the commission to assure funds and hire the engineers needed to design and construct the canal.[79] The bill approved all of the commissioners' recommendations for the construction of the Ohio & Erie Canal as well as the Miami and Erie Canal that would traverse the western part of the state from Cincinnati to Dayton. Over the next four years, the state secured $3.8 million in loans to fund the construction of the canal. Although the federal government did not provide direct financial aid, it did donate over 1.1 million acres of land to the state, which were sold to finance the project.[80]

Immediately after the final route of the Ohio & Erie Canal was determined, resident engineer William H. Price prepared plat maps, surveys, plans, and profiles of the line and locks from Portage Summit to Cleveland.[81] Land acquisition proceeded quickly. The 1825 Canal Bill give the canal commissioners eminent domain over all lands needed for canal construction. However, many owners recognized the value that the canal would bring to nearby property and sold the required strips of their land willingly. Disputes between commissioners and landowners were referred to an impartial board, whose decisions could only be appealed to the state legislature.[82]

Groundbreaking for canal construction commenced on July 4, 1825. Construction of the canal was done entirely through private contractors. The north end of the canal (between Akron and Cleveland) was completed in late 1827; the southern end was finally finished in October 1832. At this time, it was considered complete as fully navigable. The completed canal extended 308.14 miles from Lake Erie at Cleveland to the Ohio River at Portsmouth. Within the Cuyahoga Valley, the canal extended 38 miles, rising 395 feet above lake level via 44 locks.[83] Canal construction was plagued by labor shortages from the outset. While many laborers migrated west following work on the Erie Canal, in 1826 the initial workforce of approximately 1500–2000 people was significantly reduced by rain, heat, and smallpox. In subsequent

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[75] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 20.

[76] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 19.

[77] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 202; citing Scheiber, *Ohio Canal Era*, 22 and Woods, *Ohio's Grand Canal*, 5.

[78] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 22.

[79] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 38.

[80] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 27; citing Scheiber, *Ohio Canal Era*, 46 and Tamburro, "The History of the Ohio & Erie Canal," 6.

[81] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 25; citing Kilbourne, *Public Documents,* 181; Woods, *Ohio's Grand Canal,* 10.

[82] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 27; citing Finn, "The Ohio Canals," 13.

[83] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 27; citing Scheiber, *Ohio Canal Era*, 50-52.

years, smallpox, cholera, and malaria continued to decimate the working population. At the end of 1826, construction on the Pennsylvania canals and National Road through Ohio offered laborers additional work options, further reducing numbers on the Ohio & Erie Canal project.[84] Towpath construction was also hindered by natural events, including inclement weather, epidemics, and a major flood that damaged the canal in January 1828, which caused streams to rise more rapidly and to a greater height than anticipated.[85]

The components of the canal within the valley are described in detail in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment:*

> The sector's southern terminus was Lock 1 in Akron, 395 feet above Lake Erie. From Lock 1 north, a series of twenty-one locks stepped down to the Portage Path, descending from the summit (see Figure 2-7). The canal then ran level for a short distance to Lock 23, near the confluence of the Cuyahoga and Little Cuyahoga Rivers. Four miles north the canal entered present Cuyahoga Valley National Park at the village of Botzum (originally called "The Basin" then "Niles)," founded on a tract purchased and surveyed in 1836. After crossing Yellow Creek and passing through the nearby Locks Nos. 24 and 25, the canal reached Lock 26 at the tiny village of Ira. During the canal era this lock was better known as "Pancake Lock." Continuing north through the valley the canal crossed Furnace Run on an aqueduct (constructed in 1860, replacing an earlier stone culvert) and passed through Lock 27 ("Johnny Cake Lock") at Everett. At Everett, formerly called Unionville, there were stables and feed for draft animals as well as a cheese factory and post office. Approximately 2.2 miles north was Lock 28 ("Deep Lock") which featured a lift of 17 feet, the greatest of any lock between Akron and Cleveland. Most locks had a lift of 8 to 10 feet.
>
> At the Village of Peninsula, where there was a turning basin and boatyard, the canal crossed to the east side of the Cuyahoga on a 100-foot long [*sic*] aqueduct and immediately entered Lock 29 which lowered boats 12 feet. Peninsula was a true canal town whose yards reputedly produced more boats than any other town served by the Ohio and Erie or the Miami and Erie. It owed much of its success to the accident of location since it was a convenient half-way stop between Akron and Cleveland. During the height of the canal era the village had no fewer than five hotels, five banks, and 14 taverns to succor weary travelers (see Figure 2.8).
>
> About .3-mile north of the Village of Peninsula was Lock 30 and the feeder complex which supplied the canal with water from the river. The feeder was constructed in 1830 to address chronic problems with water supply. A low dam of brush and stone diverted water from the river into a 132-foot long [*sic*] feeder channel. A head gate, supported by walls of cut stone on rock, regulated the flow of water into the feeder.
>
> The canal proceeded north to Lock 31 ("Lonesome Lock") and then Lock 32 at Boston Village. At Boston there was a turning basin where the State of Ohio had met the Allen Trimble on the canal's opening day. Boston was a small but lively village that featured several stores and taverns, a boatyard, a distillery, a sawmill, and a gristmill (see Figure 2.9**Error! Reference source not found.**). James Brown, a noted counterfeiter in the valley, ran a tavern there in the 1830s and 1840s.
>
> North of Boston were Lock 33 ("Lower Boston Lock" or "Wallace Lock") and a culvert carrying Brandywine Creek under the canal. The canal continued north to Lock 34 ("Red Lock") and Lock 35 ("Kettlewell Lock" or "Whiskey Lock"), and then to Lock 36 ("17-Mile Lock") at the southern end of the Pinery Narrows. Here there was another basin and another feeder which

[84] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 28.

[85] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 69.

supplied water to the final 17 miles of canal between this point and Cleveland. A short distance north of Lock 36, Galley Run emptied directly into the canal, with a masonry structure known as a "mudcatcher" to prevent accumulation of silt in the waterway. The canal then continued another two miles through a gorge known as the Pinery Narrows and entered Cuyahoga County.

In Cuyahoga County, Lock 37 ("14-Mile Lock") was, as its nickname implied, approximately 14 miles from the canal's northern terminus at Cleveland. From 1851 on, the canal furnished waterpower [sic] to a mill near the lock, known as Alexander's Mill and later, Wilson's Mill. About equidistant between Locks Nos. 37 and 38 a 95-ft long aqueduct carried the canal over Tinkers Creek. North of Lock 37 were Lock 38 ("12-Mile Lock") and Lock 39 ("11-Mile Lock"), the northernmost locks in Cuyahoga Valley National Park. In later years there was a state boat repair slip nearby. Zimmerman's Tavern at Lock 39 was a local landmark renowned for cock fighting during the canal era.

From Lock 39 to Cleveland the terrain became flatter, and there were only three locks (Nos. 40-42). In the city itself, Locks Nos. 43 and 44 were completed no earlier than the summer of 1828. Between the last two locks, there was a large basin that accommodated both lake vessels and canal boats. It was a busy hub of commerce. Between the terminus of the canal and the lake, there were dry docks, warehouses, and other improvements that were designed to facilitate the transfer of goods between lake vessels and canal boats.[86]

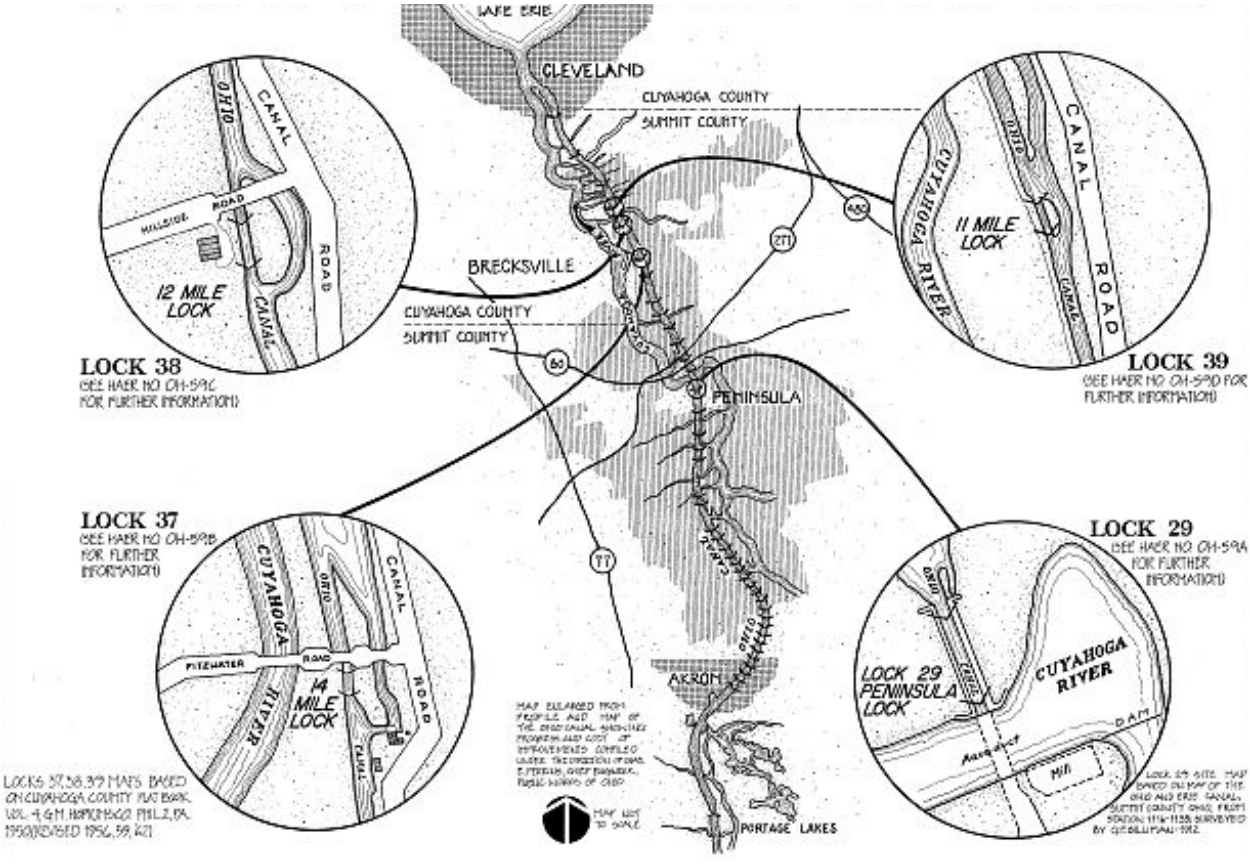


Figure 2-6: Ohio & Erie Canal from Cleveland to Akron, Historic American Engineering Record OH-59, 1986 (Library of Congress).

[86] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 33-38.

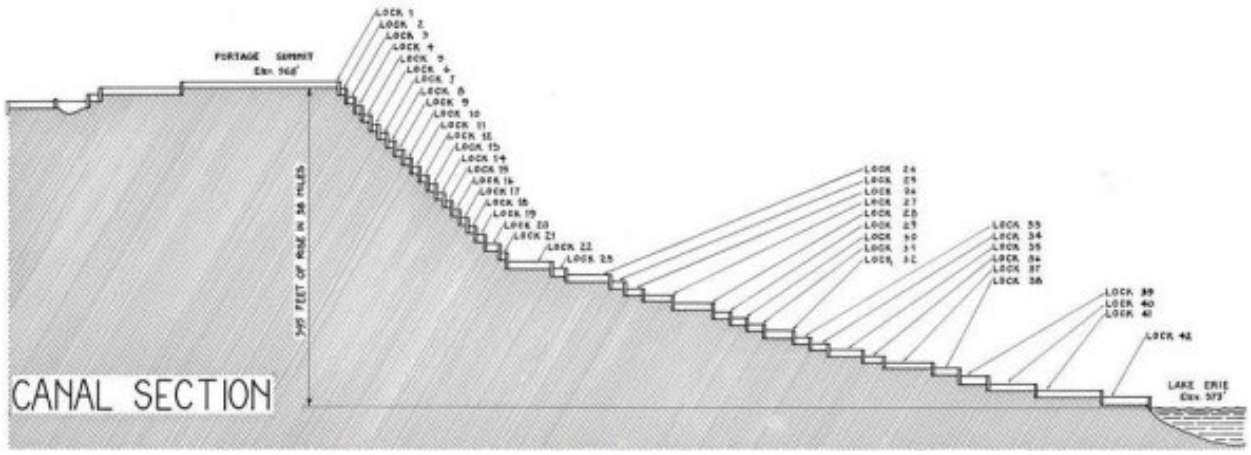


Figure 2-7: Ohio & Erie Canal profile, Cleveland to Akron, Historic American Engineering Record OH-59, 1986 (Library of Congress).

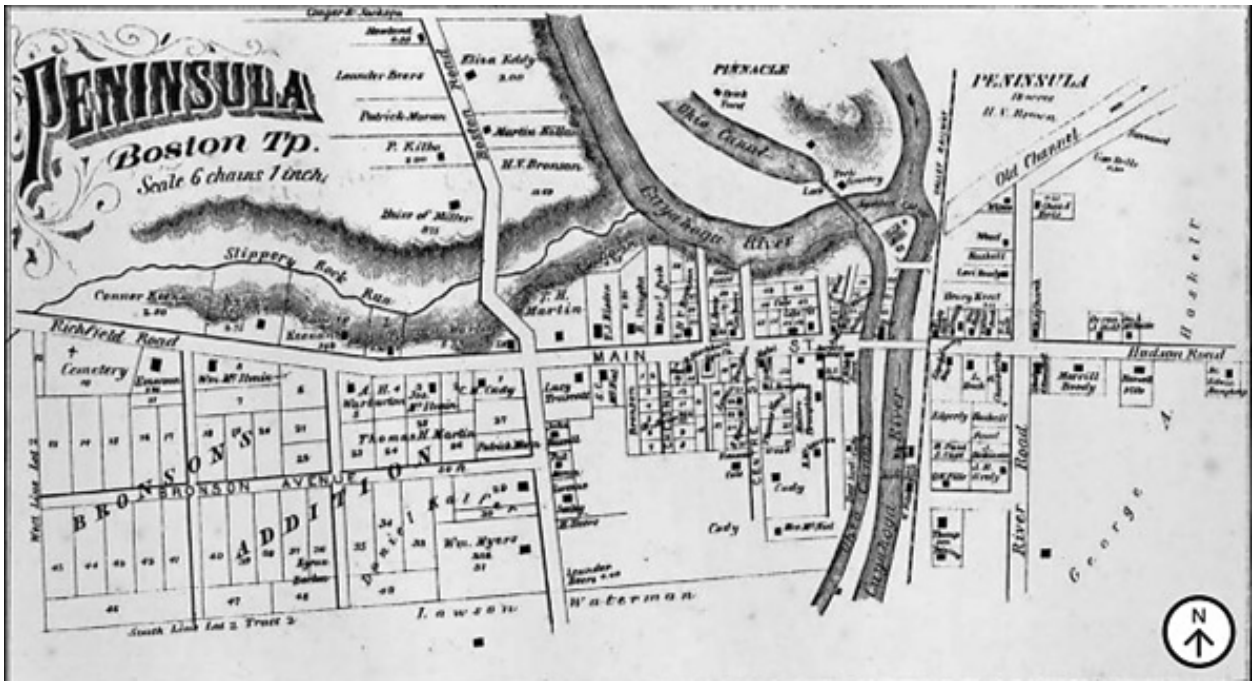


Figure 2-8: Map of Peninsula, Ohio, 1874 (Tackabury, Mead and Moffett, *Combination Atlas Map of Summit County, Ohio*).

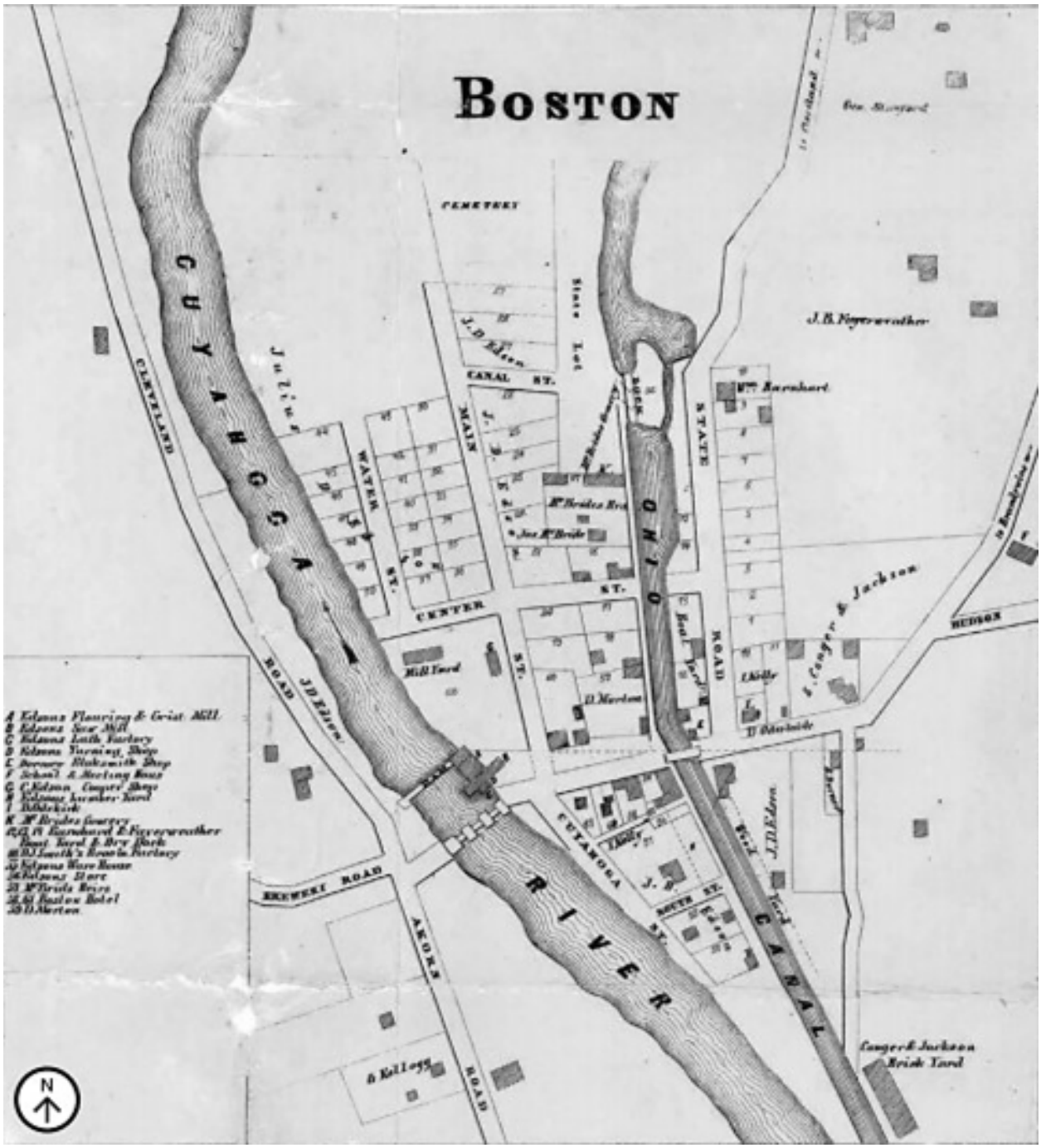


Figure 2-9: Map of Boston, Ohio, in 1856 (Paul, *Map of Summit County, Ohio*).

The canal was designed to accommodate boats towed by horses or mules, driven on a towpath that was always located between the river and the canal prism. Components of the canal corridor within the study area included the canal prism, towpath and associated berm, locks, aqueducts, culverts, waste structures, dams and feeders, a mudcatcher, and basins. A summary of each component's design and function is included from the 2019 *Ohio & Erie Canal History and Historic Structure Assessment*, below.

Canal Prism and Towpath

The canal prism was a water-filled earthen channel through which boats moved as they navigated the canal, pulled by horses or mules walking on the towpath. The prism derived its name from its

distinctive shape, the top being wider than the bottom. It had to be wide enough for two boats to pass side by side.

At their policy meeting in May 1825, the canal commissioners adopted the specifications used on the Erie Canal for the construction of the Ohio canals. The Ohio and Erie prism was a minimum of 26 feet wide at the bottom and 45 feet wide at the water line. The towpath was usually 10 feet wide and the opposite "berm" bank not less than six feet (see Figure 2-11). Thus the entire canal—prism, berm, and towpath—was a minimum of 61 feet wide. In addition, the land on both sides of the canal within 20 feet of the embankments was completely cleared of vegetation so fallen trees would not interfere with navigation. The water depth in the prism was to be at least 4 feet. Specifications required that the towpath bank be from 2 to 5 feet above the water line, and the towpath itself was graded so that the outside edge was 6 inches lower than the inner edge. As constructed, the actual dimensions often were much larger than the minimum, with the width of the prism varying from 60 to 150 feet and the depth of the water as much as 5 to 12 feet. The width of the towpath also was highly variable.

The physical work involved in constructing a canal in the early 1800s is almost unbelievable by modern standards. Following the tedious process of grubbing a 60-foot-wide swath along the canal route (33 feet from center on the towpath side and 27 feet from center on the berm side) and clearing trees and brush for an additional 15–20 feet on each side, earth was excavated by pick and shovel, and the banks were built up with earth hauled in by wheelbarrow. Blasting was necessary in many areas. The work required constant supervision by the engineers to ensure that the specifications were met.

Regarding the embankments, the canal commissioners directed: "All loose and porous materials and all much [sic] and vegetable earth used in the construction of any bank shall occupy the outward slope thereof only, and ten feet in breadth of each bank from top to bottom shall be formed of the most solid, compact, durable and water tight earth which the adjoining excavation will furnish; and that kind of earth which will form the driest, best and most durable towing path shall be placed on and near the surface of the towing path bank." In contrast to the Pennsylvania Main Line Canal and the Chesapeake and Ohio Canal, the specifications for the Ohio and Erie make no mention of puddling: the process of adding a thick (2 to 3 foot) layer of dense clay to the interior of the prism in order to make it watertight. Archeological cross-sections of the towpath performed in the 1980s revealed no evidence of puddling. This probably accounts for the fact that many sections of the Ohio and Erie leaked like a sieve immediately upon letting water into the prism in 1828. In other areas, the soils had not been compacted sufficiently, and the towpath embankment soon settled, making it necessary to reconstruct or raise the banks.

Only six months after the canal's completion a major flood in January 1828 caused the river to overflow and break through the embankments in many places. The commissioners sought to avoid future problems by raising the banks one to two feet above the highwater mark of the January flood, which had been the worst in living memory. In other spots, stone was placed on the outer slopes of the towpath and berm banks to provide erosion protection.[87]

Locks

There are 16 lift locks in the Park (Lock Nos. 24-39 inclusive), all dating to the original design and construction of the canal during the period 1825–1827. The locks, built at a cost of about $7,000 each, were constructed of sandstone walls with wooden foundations, floors, and gates. Lock chambers measured 90 feet long and 15 feet wide and the lift varied from 5.5 feet (Lock 26) to 17

[87] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 122-123.

feet (Lock 28). During the canal era frequent repairs were required to maintain the locks; these efforts varied in degree over the years and had a direct impact on both the condition of the locks and the viability of the waterway.[88]

Initial lock construction specified timber as the primary material for the structure's gates (see Figure 2.10). Hard and durable white oak was locally available and milled for this purpose; however, the rising and falling water levels in the canal took their toll on even the hardiest of materials. The natural deterioration of the materials, especially the rapid decay of wood, soon became a serious problem. By 1834 wood elements of the locks, most notably the lock gates, had become severely deteriorated and required replacement. It was clear that wood elements not continuously submerged in water would require entire renewal or extensive repairs every six to nine years.[89]

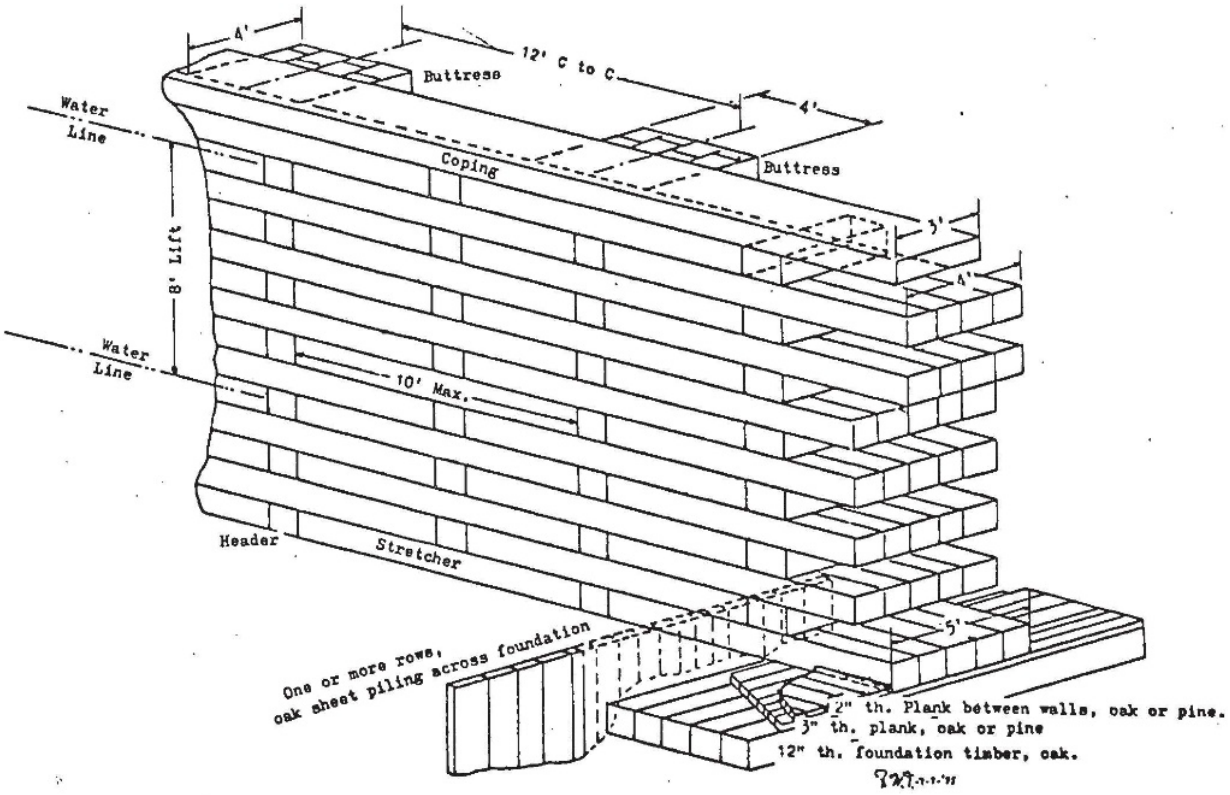


Figure 2-10: Lock wall construction in accordance with contract specifications, 1825 (Scrattish, *Historic Structure Report- Ohio & Erie Canal*).

[88] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 33-38.

[89] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 55; citing Ohio Board of Canal Commissioners, *14th Annual Report,* 6-7.

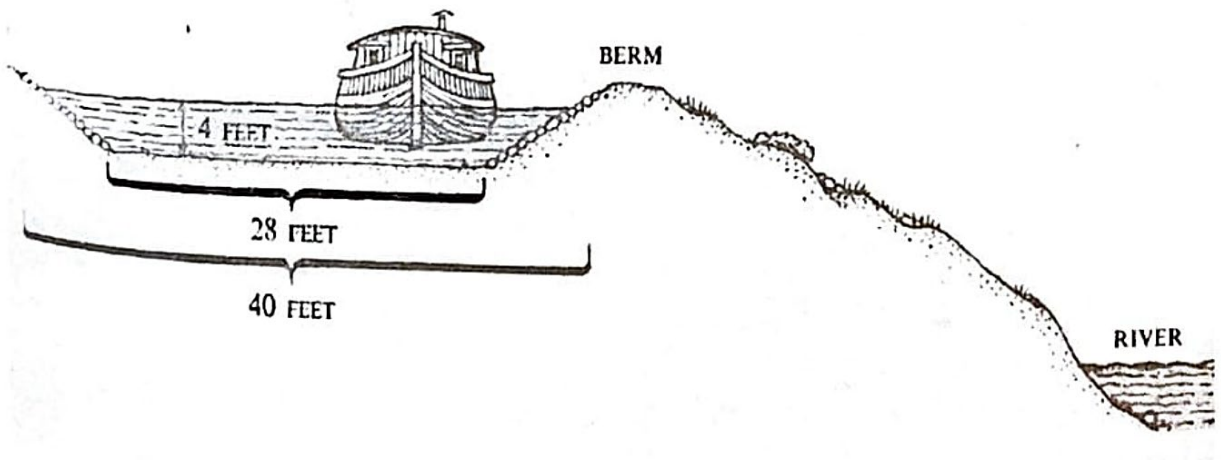


Figure 2-11: Typical canal section (Jackson, *The Colorful Era of the Ohio Canal*).

Aqueducts

Aqueducts were necessary to carry the canal across the larger streams of the Cuyahoga Valley. On the Ohio & Erie Canal the aqueducts were essentially wooden troughs or "trunks" supported by masonry piers and abutments rather than solid but expensive masonry structures as were found on some other contemporary canals. This was done as a cost-saving measure but ultimately proved to be a false economy since the wooden superstructures rapidly deteriorated and suffered frequent flood damage, requiring constant maintenance and repeated rebuilding. The inherent nature of an aqueduct dictated that the trunk had to be constructed at the same elevation as the canal it carried, but because it was usually below frequent-flood elevations it was subject to static and dynamic hydraulic pressures, scour, buoyancy, and debris impact from the waterway it crossed. In addition, wooden aqueducts were invariably leaky, and the loss of water could be a serious problem on the higher sections of the canal where reliable water supply was already problematic. Yet another problem was that the narrow width of the aqueducts could cause bottlenecks for navigation since only one boat could cross at a time. As originally conceived, there were 14 aqueducts on the entire length of the Ohio & Erie Canal, and two of them were within the present limits of Cuyahoga Valley National Park: one spanning the Cuyahoga River at the Village of Peninsula and the other over Tinkers Creek in the northern portion of the park.[90]

Culverts

The original contract specifications for the canal presented detailed descriptions for major canal components such as the prism, embankments, and locks, but provided no data for secondary structures such as culverts. These structures were handled on a case-by-case basis and specifications were generally handwritten into contracts by an acting commissioner or state engineer. In December 1826 the Canal Commissioners reported that six stone culverts and nine wooden culverts had been completed on the canal between Portage Summit and Cleveland, but they did not note the specific locations. They apparently added more culverts since contracts were awarded for a total of 24 such structures in this section during initial construction of the canal.

Based on the original contracts, a list was compiled of all component structures built between 1825–1827 within what is now Cuyahoga Valley National Park; while this list includes 24 culverts,

[90] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 79.

the specific locations of these structures are not identified nor are construction methods and materials.

A report filed in 1833 was the first document to discuss structures on the canal in a comprehensive manner. Detailed specifications provide a record of the methods and materials used in the construction of culverts between 1825–1833. They also served as a standard reference guide for the engineering corps and superintending personnel as they worked to operate and maintain the waterway. Arch culverts were formed of stone, cut in regular segments and laid in range work, with wing walls and parapet walls of cut stone; the masonry was erected on a floor of hewn timbers secured by sheet piling at both the head and the foot. Box culverts, constructed of broad pieces of timber, served as land drains or carried small springs under the canal; in general, apertures ranged from 8 to 16 inches square and placement was restricted to where the culvert would always be under water to reduce the possibility of premature decay.[91]

Waste Structures

Waste structures are control components that regulate the level of the water within the canal and provide protection during conditions of high water. Such structures include flood gates and waste weirs. A flood gate is a sluice (a manmade channel for conducting water) with valves or gates that regulate the flow of water. A high-water waste weir is a dam that is located in line with the canal towpath bank and allows water to flow over it during flood events, discharging into the river.

The early reports and lists of specifications for the canal contained even less information about waste structures than culverts. Neither the commissioners' December 1826 report on the progress of construction nor their more detailed January 1833 report mention waste structures. The 1825 construction contracts for the 22 miles of canal within Cuyahoga Valley National Park note only one waste weir (Bolanz), located on Section 41 between Locks Nos. 26 and 27. Like the wasteways at the locks and the water supply feeders, they may have been considered structures "of less pressing importance" that were deferred until a later time in the initial rush to get the canal ready for navigation.[92] After construction, canal engineers realized how difficult it was to maintain the consistent four foot depth in the canal and added waste structures to release excess water to the river.[93]

Dams and Feeders

Feeders were required to ensure an adequate supply of water for the canal, particularly along higher sections of the line. On the Ohio & Erie Canal, a feeder complex consisted of a V-shaped timber crib-dam across the river to create an impoundment; a set of head gates that diverted water from the river into the feeder and regulated the flow of water; the feeder channel, a wide ditch that carried water from the dam to the canal; and the waste gates, which returned excess water to the river (Figures 37 and 38). By the early 1830s, there were twelve feeders along the entire line of the Ohio & Erie Canal, including two within what is Cuyahoga Valley National Park: one, built in 1827 at the head of the Pinery Narrows, and the other, built in 1830 just downstream from the village of Peninsula. A small feeder structure was associated with the Yellow Creek culvert in 1844 as part of an effort to reduce sedimentation around the culvert.[94] Another was

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[91] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 89-90.

[92] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 98.

[93] "Waste Weir," Cuyahoga Valley National Park, National Park Service, https://www.nps.gov/places/000/waste-weir.htm

[94] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 92.

located just north of Akron at "Old Portage," near Lock 21, where the canal entered the south end of the Cuyahoga Valley.[95]

Mudcatcher

Mudcatchers were small dams or bulkheads placed at locations where minor streams were allowed to drain directly into the canal as a source of water to sustain canal operations. They were designed to hold back silt and debris that otherwise would have been deposited into the canal. Cleaning debris from the mudcatchers was part of routine canal maintenance performed by state crews.

According to Tamburro and Hiner, the Galley Run Mudcatcher originally was built in 1826, however, the work is not listed among the contracts awarded during the 1825–1827 period. The *Annual Report of the Board of Public Works of Ohio* for 1895 suggests that the mudcatcher was constructed in that year, or it possibly was reconstructed. The original mudcatcher probably was a stone masonry structure.[96]

Basins

Basins were intentionally widened sections of canal where boats could turn around, wait to pass through a lock, and take on or unload cargo. Most of the larger towns along the canal had a basin where boats could stop overnight or transfer passengers and freight. Wharfs and slips were built along the edge of the basins, sometimes with adjacent warehouses for the storage of goods by commission merchants. Akron and Cleveland both had extensive wharf and warehouse facilities at their basins. There also were wharfs at various loading points between towns, and farmers sometimes had their own landings. There were no written standards for constructing basins and little mention of them in the engineers' correspondence and annual reports of the Board of Canal Commissioners and Board of Public Works. Most may have been privately financed and built by local contractors.

Maintenance of the basins was similar to that of the canal itself. They had to be dredged periodically to ensure adequate water depth for boats, and the wharves and retaining walls, if present, required regular repairs.[97]

The 38-mile Northern Division of the canal (Cleveland to Akron sector) opened on July 4, 1827, with a celebratory trip down the canal by Ohio's governor and several other distinguished individuals. However, contractors had taken shortcuts in order to meet the early completion date, and repairs were soon required as the implications of major landscape changes and practical use of canal features became apparent.[98] These problems were addressed within the year, and the Akron-to-Cleveland portion was finally considered complete.[99]

Once operational, different commodities moved north and south from Ohio's interior, depending on the demands of the destination markets. Goods transported north (to Cleveland and eastern seaboard markets) included wheat, butter, tobacco, whiskey, cheese, beef, and coal. Coal was transported for the

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[95] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 107.

[96] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 113-114.

[97] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 130.

[98] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 32; citing Kilbourne, *Public Documents*, 276.

[99] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*.

first time in late 1827 and it would become increasingly important over the canal's lifetime. Goods transported south included salt, fish, lumber, and gypsum.[100]

Construction of the Ohio & Erie Canal necessitated dramatic changes to the Cuyahoga Valley economy and landscape. In addition to the 60-foot-wide area grubbed along the canal route, trees were likely cleared from adjacent woodlands for construction of the canal structures, plank roads, buildings, and boats. Low grounds were drained, obstructions to water flow removed, and the topography extensively regraded to accommodate the canal prism and towpath.[101] Four quarries near Peninsula, including the quarry adjacent to Lock 29 (Deep Lock), supplied most of the Berea sandstone used in canal construction between Akron and Cleveland (see Figure 2.12). Sawmills were established to process white oak, which was used for gates, culverts, and aqueducts.[102] Approximately 45 boatyards and as many as 340 boats were operating on the canal by 1838, supported by transportation lines that warehousing facilities and forwarding and receiving houses.[103]



Figure 2-12: Quarry near Peninsula (likely Deep Lock Quarry), undated (Edwin Bell Howe Photograph Collection, Summit Memory).

Promise of the canal's economic boon fueled speculative development along its route. Akron was established at a strategic portage location along the canal's route in 1825; by 1850, the town boasted 3,206 residents. Cleveland's population rose from 606 in 1820 to 6,071 in 1840.[104] The increase in population and wealth in the Cuyahoga Valley during this period greatly influenced development of the built environment. Population growth increased significantly in the counties through which the canal ran, by 70,000 in the 1820s and 100,000 in the 1830s.[105] Within the study area, town centers in Boston, Peninsula,

[100] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 41.

[101] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 69.

[102] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 40.

[103] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 39-40.

[104] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 43; and Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 41.

[105] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 42.

Brecksville, Independence Township, and Everett grew and adapted to serve a growing workforce and in response to the trade route established by the canal. Both Boston and Peninsula emerged as boatbuilding centers during the canal era, while also providing mills, warehouses, taverns, stores, and lodging to travelers and tradesmen along the canal.[106]

Everett coalesced around the construction of Lock 27 (Johnny Cake Lock) around 1826, although initial land transactions in this vicinity predate the canal. By 1839 there were nine landholders in the vicinity of the lock, including the Swan and Smith Dry Good Store and a livery for canal mule boats operated by Henry Iddings.[107]

Herman Bronson platted the town of Peninsula in 1837, laying out the town in response to the natural features and canal; the peninsula area became the center of life in the town. Maximizing river frontage made the area attractive to milling, grinding, and boatbuilding industries, and a turning basin and boatyard made it a natural stopping place for canal traffic.[108] A bridge was constructed at the end of Mill Street, connecting the Moody and Thomas Mill (adjacent to the Peninsula Aqueduct) to the town. In winter, ice was cut from the river and stored in the ice house for summer use.[109] Bronson's own house was completed in Greek Revival style in 1824, made from locally-quarried Berea sandstone.[110] The Bethel Church was constructed in 1835 to "introduce moral and religious tactics among the vicious and unlawful practices of the canal boatmen."[111]

Although it was established before construction of the canal, the village of Boston expanded with the canal's economic boon. During the canal's heyday, Boston Village had a population of 300, supporting a sawmill, gristmill, warehouse, two stores, a saloon, a hotel, and a boatyard. The cemetery plot was acquired by the Boston Moral Society in 1833 near the northern end of Main Street, and by 1854 a school/meeting house was constructed near the intersection of Boston Mills and Hines Hill roads. Several storehouses and millhouses were constructed near the canal from 1835 through 1839, including the Boston Land and Manufacturing Company Store (now Boston Store), the James (Jim) and Lucy Brown store house and "Red House," and another store to the west operated by Abraham Holmes. Henry Wadhams ran a store on the south side of Boston Mills Road, and a boatyard was located on the east bank of the canal just south of the Boston Lock. Other features dating to this period include the Conger-Jackson House (1835) and Barnhart House (1835).[112] The town's most notorious citizen, Jim Brown, ran a counterfeiting ring out of the tavern adjacent the Boston Store building until a fatal fall from a canal boat in 1865.[113]

Independence Township also saw major increases in population and community activity in this period. By 1830, the Township boasted four school districts and the first of many churches constructed by Congregationalists.[114] Portions of the Lock Tender's House (Canal Exploration Center, HS 125) in Independence are estimated to date from this decade.[115]

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[106] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 44.

[107] National Register of Historic Places, Everett Historic District, Summit County, Ohio, National Register #93001467, https://npgallery.nps.gov/AssetDetail/NRIS/93001467.

[108] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 35.

[109] Hunker and Grabowski, "An Historical and Tourist Guide to Peninsula and the Ohio Canal."

[110] National Park Service, "Peninsula Village Historic District: A National Register of Historic Places Travel Itinerary."

[111] National Park Service, "Peninsula Village Historic District: A National Register of Historic Places Travel Itinerary;" citing William Perrin, *History of Summit County* (1881).

[112] National Register of Historic Places, Boston Mills Historic District, Summit County, Ohio, National Register #92001490, https://npgallery.nps.gov/AssetDetail/NRIS/92001490.

[113] Summit County Historical Society, "Peninsula," accessed May 2021, https://www.summithistory.org/peninsula.

[114] Encyclopedia of Cleveland History, "Independence," Case Western Reserve University, accessed May 2021, https://case.edu/ech/articles/i/independence.

[115] Johnson, et al., *Historic Structure Report: Lock 38 and Locktender's House*, 8-9.

With construction of the canal, the economy within the Cuyahoga Valley quickly transitioned from subsistence agriculture to a diversified cash-based economy connected to distant markets. In 1827, agricultural practices shifted from subsistence farming of corn and swine to commercial production of wheat and cattle. Cash commodities were particularly prevalent in the villages and townships along the canal corridor, where every point of access offered the opportunity to store grain, sell goods, or provide food and lodging for travelers. Conversion of the surrounding landscape to agricultural fields and industry followed suit, as well as investment in more elaborate buildings and internal improvements such as plank roads.[116] Settlers prioritized road construction to facilitate the easier exchange of goods to the canal corridor. Many of the impressive residences, commercial buildings, and churches, as well as all brick construction, can be dated to this period between the late 1820s and 1840.[117]

Trade on the Ohio & Erie Canal continued to increase until 1840, while the canal held a monopoly on transport of commodities to the eastern seaboard. However, its success also generated interest in other canals, including the mostly private Pennsylvania and Ohio (Mahoning) Canal, which was constructed at the end of this period to link Akron to the Pennsylvania canal system and provide a direct route to Philadelphia.[118]

Chronology

1814–1818	Ohio Governor Thomas Worthington urged approval of infrastructure improvements, focusing on canal development.[119]
April–December, 1822	James Geddes, senior Engineer for the Erie Canal (NY) surveyed 5 possible routes for the Ohio Canal. These routes were: 1) From Sandusky Bay to the Ohio River 2) From the mouth of the Cuyahoga River at Cleveland to the Ohio via the Muskingum and Tuscawaras Rivers 3) From the mouth of the Black River to the Ohio via the Muskingum 4) From the mouth of the Grand River to the Ohio via the Mahoning 5) From the mouth of the Maumee River to the Ohio at Cincinnati via the Auglaize and Miami Valleys
January 3, 1823	Additional surveys were approved, overseen by Commissioners Kelley and Williams.[120]
January, 1824	Scioto-Muskingum-Lake Erie route deemed preferable due to favorable topography, adequate water supply, and anticipated public support as the line passed through more pre-established communities who would benefit.[121]

[116] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 44; and Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 41.

[117] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 3.

[118] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 44.

[119] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 18.

[120] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 20.

[121] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 22; citing Scheiber, *Ohio Canal Era,* 22-25; Still, "Ethan Allen Brown," 40; Kilbourne, *Public Documents*, 103-112, 115-128.

1824	Deep Cut and large reservoir design to ensure passage at Licking Summit lead to engineering approval of Scioto-Muskingum line.[122] Bronson House built in Peninsula of Berea sandstone in Greek Revival style.[123]
May 5, 1825	Cuyahoga Valley Route formally approved by commissioners.[124]
1825	'1825 Canal Bill' passed, approving construction of Scioto-Muskingum (Ohio and Erie) and Miami-Erie canals.[125]
1825–1827	Construction was contracted entirely to private entities. Much of the preliminary digging was done by local farmers, hired by those contractors. This marked a significant economic shift from trade and barter to cash-based transactions for goods and services.[126]
1827	Lock Nos. 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, and 39 constructed.[127] Peninsula Aqueduct constructed.[128]
	Following construction, additional changes were made to the canal to address immediate problems. Where exposed to strong currents, manmade banks were stabilized using piles interwoven with brush, stones set into bank walls, and/or timber walls secured with ties.[129]
	Toward end of the year, coal shipments began from Talmadge north to Cleveland.[130]
1828	Lock 30 constructed.
July 4, 1827	38-mile Northern Division of the Ohio-Erie Canal opened.
1828	Canal opened from Akron to Massilon via Portage Summit.[131] Lock Nos. 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, and 39 repaired.[132]
July 1830	Section across Licking Summit completed.[133]
1831	Ohio & Erie Canal opened through Chillicothe.[134]

[122] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 24; citing Kilbourne, *Public Documents*, 111-112.

[123] National Park Service, "Peninsula Village Historic District: A National Register of Historic Places Travel Itinerary."

[124] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 26.

[125] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 38.

[126] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 2.

[127] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 59-77, 84.

[128] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 84.

[129] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment* 32; citing *Public Documents*, 276.

[130] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 41.

[131] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 32.

[132] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 59-77.

[133] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 32.

[134] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 32.

October 1832	Ohio & Erie Canal completed to Portsmouth and the Ohio River and fully opened as a navigational route. [135]
1832	Moody and Thomas Mill constructed in Peninsula.
1835	Bethel Church constructed in Peninsula. Boston Land & Manufacturing Company building constructed in Boston.
1837	The Panic of 1837 resulted in a massive transfer of lands within the valley as commodity prices fell and banks were unable to collect on their loans.[136]
1838–1840	As many as 340 boats were operating on the canal. The Pennsylvania and Ohio Canal opened, connecting to the Ohio & Erie Canal at Akron. This made Cleveland a significant meeting point for iron ore from the Great Lakes and coal from Appalachia, boosting local industry.[137]
May 15, 1840	Moses Gleason purchased the Lock Tender's House property (HS 125) from William H. Knapp. The property remained in the Gleason family until 1904.[138]

[135] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 32.

[136] "Banks and Savings & Loans," Encyclopedia of Cleveland History, Case Western Reserve University. https://case.edu/ech/articles/b/banks-and-savings-loans.

[137] James Jackson and Margot Jackson, "The Colorful Era of the Ohio Canal," Ohio Canal Sesquicentennial Commission, 1977, on file at Cuyahoga Valley National Park, Container 3, Folder 32.

[138] Johnson and Newman, *Historic Structure Report: Lock 38 and Locktender's House*, 22.

The Long Decline, 1840–1929

Canal corridor landscape changes from 1840 to 1929 are illustrated on drawing HP-2 (see page 2.36).

The Ohio & Erie Canal had a short-lived heyday. The beginning of its decline can be traced to the opening of the Pennsylvania and Ohio (P&O)/Mahoning Canal from Akron to Youngstown in 1840, which ended the Ohio–Erie monopoly on transporting goods through the region (see Figure 2.13). The opening of the new canal allowed for three major commodities from the Mahoning Valley to pass through the Cuyahoga Valley en route to Cleveland: coal, wool, and dairy products.[139]



Figure 2- 13: Ohio's Canals and canalized rivers. Newark is called out as the point from which goods traveled north or south on the canal (Heberling Associates, 2019).

[139] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 44; citing Scheiber, *Ohio Canal Era*, 215-217; Woods, *Ohio's Grand Canal*, 25.

Despite competition from the Pennsylvania and Ohio/Mahoning Canal, the beginning of this period saw continued development along the canal corridor. Towns like Independence, near the Cleveland end of the canal, saw significant traffic in this period. Historic documentation references the Lock Tender's House (Canal Exploration Center) at Lock 38's involvement in canal operations through the 1840s and 1850s (see Figure 2-14).[140] As described in the building's 1984 Historic Structure Report, "It was a place of rest, socialization, and supply for local residents, too close to the canal's origination point in Cleveland to offer more than a momentary diversion for boat passengers or crew. Evidence suggests that the structure served the rural community in Independence Township that grew from 245 residents in 1830 to 1,663 three decades later."[141]



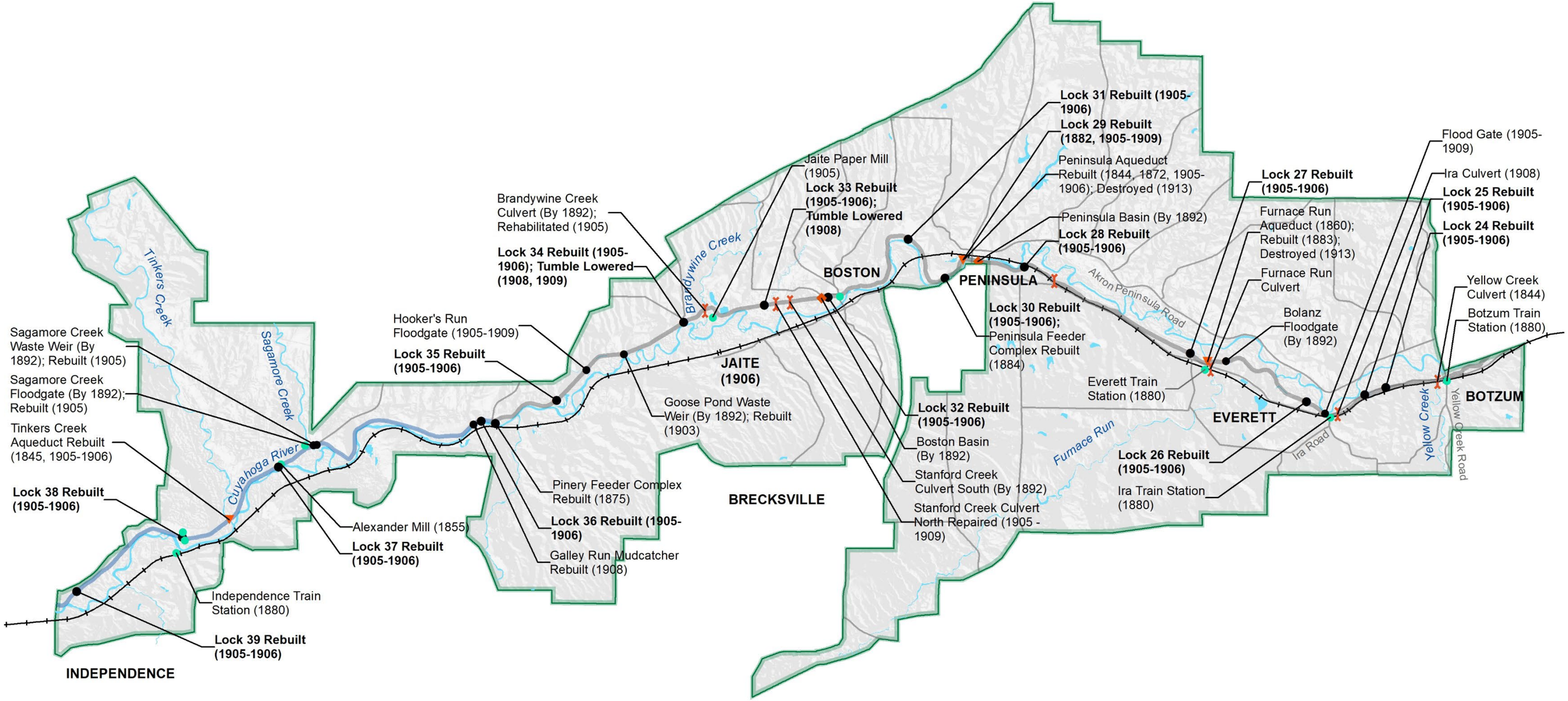
Figure 2-14: Early photograph of Lock 38 and Lock Tender's House, 1874 (CVNP 15298/6/20).

Andrew Alexander constructed a mill in 1855 at nearby Lock 37, using the spillway from the lock to power the grist mill (see Figure 2-15 through Figure 2-17). The Alexander Mill continued operation of the custom mill, grinding grist for local farmers. The mill was purchased by the Wilson family in 1900, who began milling and selling wheat, rye, flour, scratch feed, and shelled corn (see Figure 2-18). Expansion of the local roadway system in the 1920s grew the mill's market.[142]

[140] Johnson and Newman, *Historic Structure Report: Lock 38 and Locktender's House,* 2-3.

[141] Johnson and Newman, *Historic Structure Report: Lock 38 and Locktender's House,* 8-9.

[142] Carol Poh Miller and Sam Tamburro, "Ohio Historic Inventory: Wilson's Mill" revised August 2000, on file at Cuyahoga Valley National Park; and National Park Service, "Wilson Feed Mill - Cuyahoga Valley National Park" accessed November 19, 2020, https://www.nps.gov/cuva/learn/historyculture/wilson-feed-mill.htm.



0 3,000 6,000 12,000 Feet

1 inch = 6,000 feet

N

Legend

- CVNP Boundary (2021)
- River/Stream (2021)
- Ohio and Erie Canal (Abandoned 1913)
- Ohio and Erie Canal (Maintained by American Steel and Wire, 1913-1992)
- Cuyahoga Valley Railway (1871); Bought by Baltimore & Ohio Railroad (1915)
- Lock, Waste Structure, or Feeder
- Aqueduct
- Culvert
- Basin
- Key buildings along canal corridor
- Roads (1856)
- BOSTON (1811) Villages along the canal corridor (founded date)

Sources

1. Park boundary data and water data from National Park Service, Cuyahoga Valley National Park
2. SKDG Canal Conditions spreadsheet, 2021
3. Ohio and Erie Canal Historic Structures Assessment, Herbling Associates, 2019
4. Map of Summit County, Ohio, Paul, 1856; road and canal alignment, Summit County only
5. Drawing by Quinn Evans, Arcmap 10.8

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

The Long Decline 1840-1929 Historic Period Plan

October 2022



Figure 2-15: The Alexander's (Wilson's) Mill and Lock 37 in 1900 (Louis Baus Canal Photograph Collection, OEC_63, The University of Akron, University Libraries Archival Services).



Figure 2-16: Alexander's (Wilson's) Mill, ca. 1915 (CVNP Archives, 90aaa).



Figure 2-17: Vanoucek's Tavern across the canal from Alexander's (Wilson's) Mill, ca. 1904 (CVNP Slide 90y).



Figure 2-18: Tom Wilson working in the Wilson Mill, ca. 1920 (National Park Service).

The expanding coal mining industry in Ohio's interior provided a major export for the state and was almost exclusively transported via canal in the 1840s. An estimated 25% of Ohio's coal production was transported via the Ohio & Erie Canal in 1850, nearing its peak production of over six million bushels in 1855. Dredging of the canal prism during this period helped to increase the allowable weights of barges from 40 to 60 tons so that more volume could be transported; however, the proliferation of other canals

and the emergence of rail lines throughout the state once again threatened the Ohio & Erie's prominence.[143]

Interregional competition from other canal routes in Ohio, Pennsylvania, Illinois, and Indiana—as well as river trade along the Ohio and Mississippi—forced boat operators on the Ohio & Erie Canal to pare their rates during the 1840s, restricting profits.[144] Canal historian Terry Woods writes that the "great reduction in the cost of river transportation between New Orleans and the eastern markets put an effective stop to traffic in both directions between Lake Erie and the Ohio River… By the early 1840s, the traffic pattern on the canal had permanently changed. For all practical purposes, goods at or south of Newark were transported south on the canal to the river, and goods north of Newark were transported to the Lake" (See Figure 2-12).[145]

In addition to competition from other canal and waterway systems in the 1840s, arguably the most important factor in the demise of the Ohio & Erie Canal was the rapid development of railroads. Railroads offered greater speed of travel and were not subject to the seasonal limitations of canals, which were not only closed during the winter months, but subject to traffic interruptions due to low water, floods, or other natural occurrences. Railway construction boomed during the 1850s; in 1850 Ohio had approximately 300 miles of railway line; by 1860, the state had over 3000 miles (see Figure 2-19).[146] Once telegraphic communication was widely implemented, railroads also allowed customers to benefit from short-term pricing changes in different markets.[147] This alteration in the timetable for transporting goods also impacted the types of commodities produced in the region. With shorter times between farm and market, farmers could sell milk and other perishable products rather than only non-perishable or preserved goods. In Boston, many farmers started specializing in dairy and cheese, which became a significant part of the town's economy.[148]

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[143] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 40.

[144] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 44-45.

[145] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 45; citing Woods, *Ohio's Grand Canal*, 24-25.

[146] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 45; citing Scheiber, *Ohio Canal Era*, 290.

[147] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 45; citing Scheiber, *Ohio Canal Era*, 320-327.

[148] Boston Township, "Our town: a brief history," accessed May 2021, https://www.bostontownship.org/ourtown.phtml#:~:text=%22Peninsula%22%20was%20incorporated%20in%201859,saloons%20served%20boisterous%20canal%20crowds.

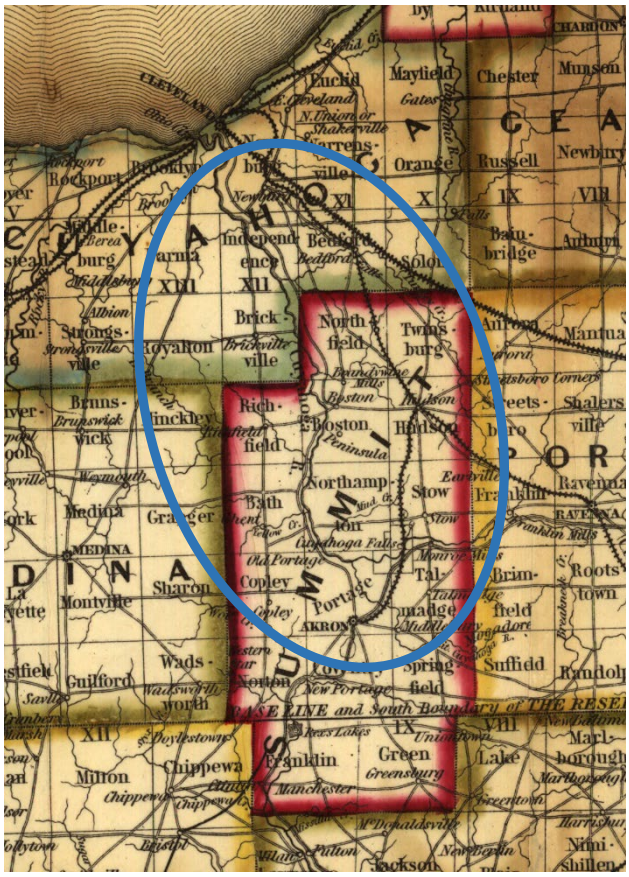


Figure 2-19: Railroads in Summit and Cuyahoga Counties, Ohio, 1854. General location of study area is called out with the blue circle (Detail from Ensign, Bridgman & Fanning, Railroad & township map of Ohio, New York, Library of Congress).

Encroachment by railroads proceeded rapidly in the 1850s and was not limited to market-based competition. The P & O Canal was essentially put out of business in the mid-1850s following its acquisition by the Mahoning Railroad. In turn, this reduced traffic for the northernmost sector of the Ohio & Erie Canal, which had received most of its use from the feeder P & O canal for seventeen years.[149]

To more effectively compete with the expanding railroad system, the Board of Public Works undertook an extensive program of repairs to the canals in 1850, which included rebuilding 19 locks on the Ohio & Erie Canal. A $2 million modernization program was put forward the following year, which proposed widening and deepening the canals. However, public confidence in the canal system was quickly eroding. Droughts in 1851 and 1856 slowed and impeded travel, and flood events in 1858 and 1860 caused extensive damage throughout the canal. Following a decline in tonnage transported via the canal in 1853, the state legislature was uninterested in spending the millions of dollars required to rehabilitate and maintain canal infrastructure and was beginning to believe that the best policy might be to dispose of the canal system altogether.[150] Deterioration of the canals during this period is described by Scheiber (1969):

> "…mud was allowed to slip down the banks into the water, culverts collapsed, and vegetation clogged reservoirs, feeder lines, and the main ditches themselves. Never had navigation been so uncertain or difficult, and this was disastrous at a time when the railroads were competing

[149] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 45; citing Ernest L. Bogart, *Internal Improvements and the State Debt in Ohio: An Essay in Economic History* (New York: Longman, Green, and Co., 1924), 126. Scheiber, *Ohio Canal Era,* 327.

[150] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 45.

successfully against even the best of America's canals."[151]

The Act of June 2, 1861 provided that public works of the state be leased to the highest bidder for a period of 10 years; as a result, the canal was handed over to a syndicate of ten operators.[152] Over the next 16 years, private operation of the Ohio & Erie Canal was "neither brilliantly good nor terribly bad," winning the syndicate another 10-year lease in 1871.[153] They performed routine dredging and maintenance, and repaired a number of locks.

Performance of the canal during this period was bolstered by the Civil War, which brought a bustle of activity as the canal was utilized to transport grain and other freight. Boatyards at Akron, Peninsula, and Boston were full, and private industry expanded to support traffic on the canal. Traffic again declined following the war. Freight companies disbanded and the syndicate surrendered their lease of the Ohio & Erie Canal on December 1, 1877.[154] After a brief period of receivership, the Board of Public Works regained management of the canal in 1878. The condition of the canal continued to deteriorate throughout the 1880s as traffic declined with the exhaustion of coal deposits near Akron, the primary commodity still transported by the canal. Still, the state attempted to keep the canal functional. In 1887, the upper courses of the lock walls were set back and new gates installed. For the first time, brick, cement, and concrete were used for lock repairs. However, insufficient appropriations necessitated patching the structures rather than the reconstruction that would have been required to maintain the features long-term.[155]

Despite the deteriorating condition of the canal during this period, a wealth of historic photographs documents operation and use of the canal and surrounding landscape during the 1880s, 1890s, and early 1900s (see Figure 2-20 through Figure 2-38); photos are presented from south to north). The towpath was a rutted, irregular dirt route adjacent to the canal prism; small buildings and sheds were also clustered near each of the photographed locks. The vicinity of the canal corridor appears lightly forested, with early second-growth trees visible on slopes and floodplain areas near the canal prism. To maintain functionality of the canal, there are no trees between the prism and the towpath, however, shrubs and herbaceous vegetation are dense along the prism and towpath margins. Small-scale features along the canal are limited to utilitarian items supporting canal function and fences along roads or the towpath.

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[151] Harry Scheiber, *Ohio Canal Era: A Case Study of Government and the Economy, 1821-1861*. Athens, Ohio: Ohio University Press, 1969.

[152] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 46.

[153] Finn, "The Ohio Canals," 36; and Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 46.

[154] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 47; citing Bogart, *Internal Improvements and the State Debt*, 115; Woods, *Ohio's Grand Canal*, 57.

[155] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 61.



Figure 2-20: Canal in Ira/Botzum area, undated (Edwin Bell Howe Photograph Collection, Summit Memory).



Figure 2-21: Dredge near Ira, ca. 1900 (CVNP Archives, CB-10).



Figure 2-22: Lower lock at Botzum, 1890 (Edwin Bell Howe Photograph Collection, Summit Memory).



Figure 2-23: Three-cabin freighter at Lock 28 (Deep Lock), with quarry visible in the background, 1890 (Louis Baus Canal Photograph Collection, OEC_123, The University of Akron, University Libraries Archival Services).



Figure 2-24: Lock 29 at Peninsula in 1898 (Louis Baus Canal Photograph Collection, OEC_118, The University of Akron, University Libraries Archival Services).

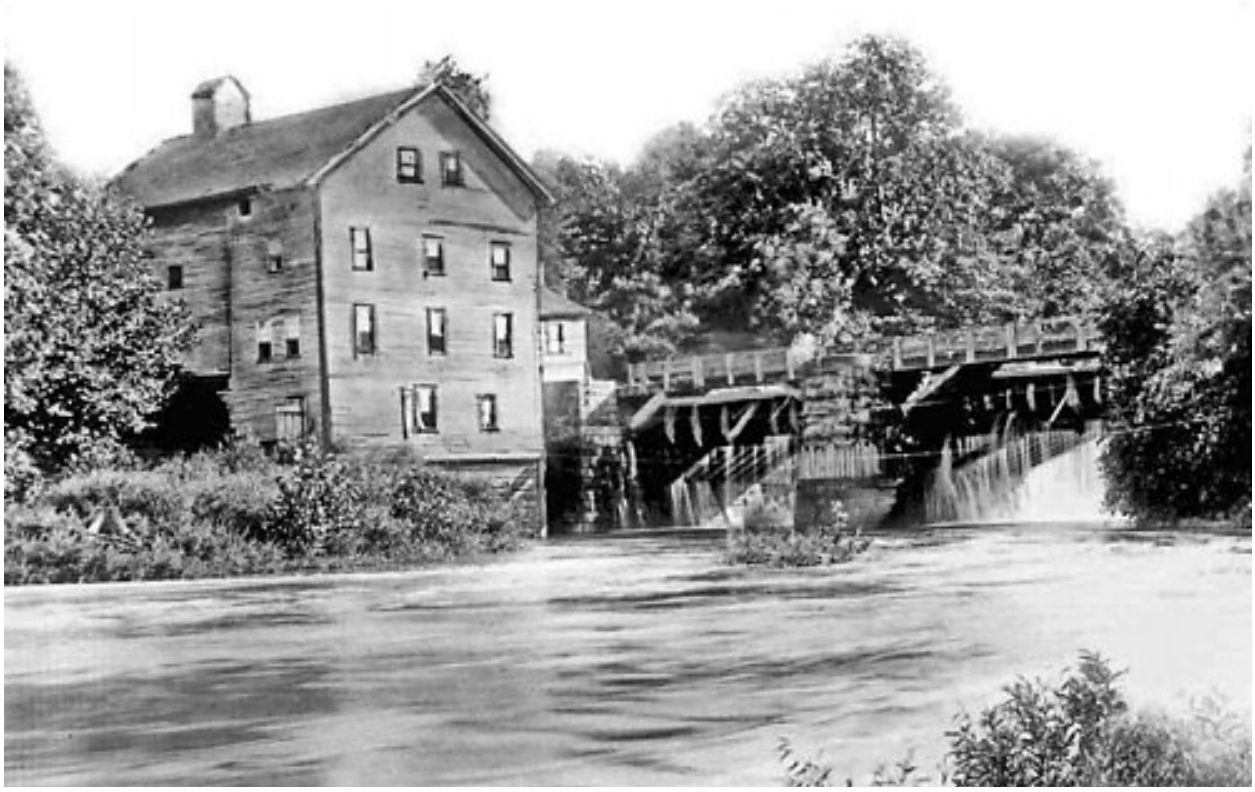


Figure 2-25: Mill and Aqueduct at Peninsula, 1898 (Louis Baus Canal Photograph Collection, OEC_119, The University of Akron, University Libraries Archival Services).

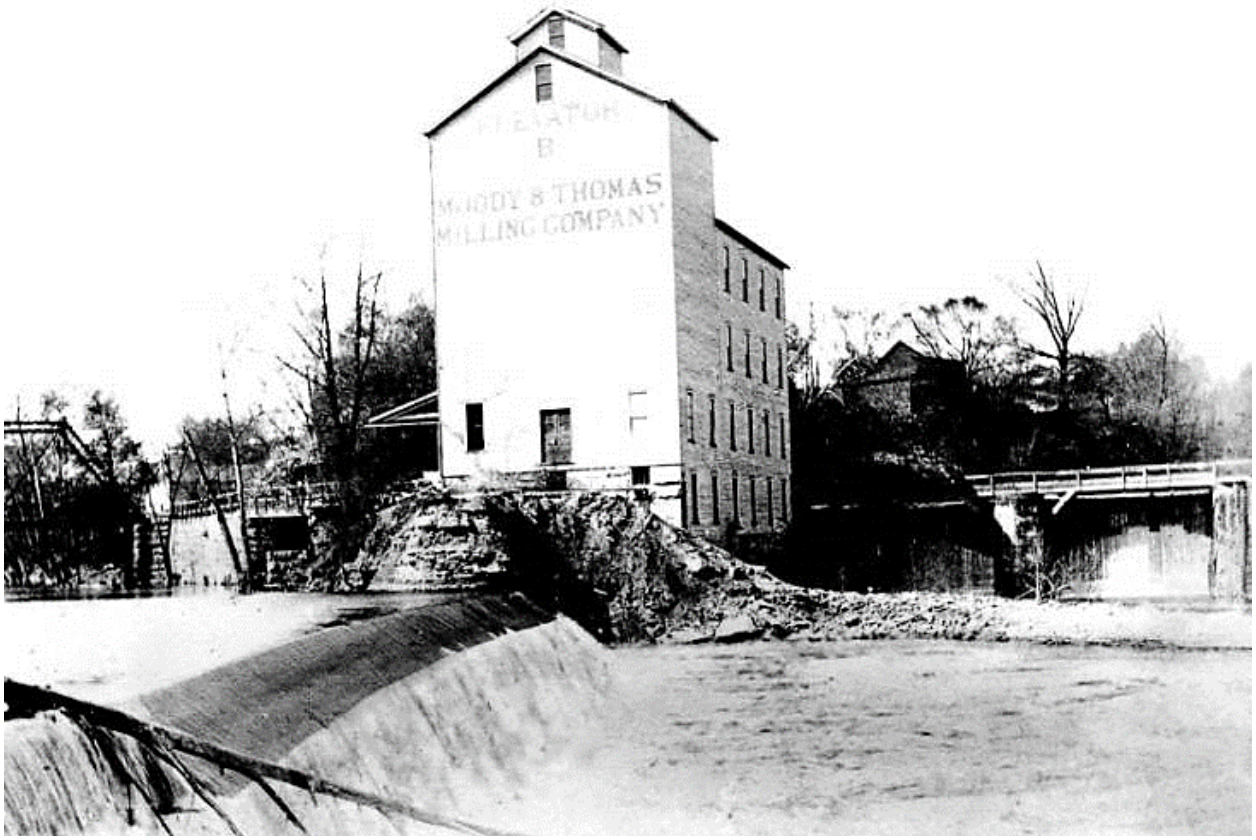


Figure 2-26: Peninsula Aqueduct, Dam, and mill, looking west from village, 1898 (Louis Baus Canal Photograph Collection, OEC_120, The University of Akron, University Libraries Archival Services).



Figure 2-27: Feederlock 30, undated (CVNP Slide 7.1-56).

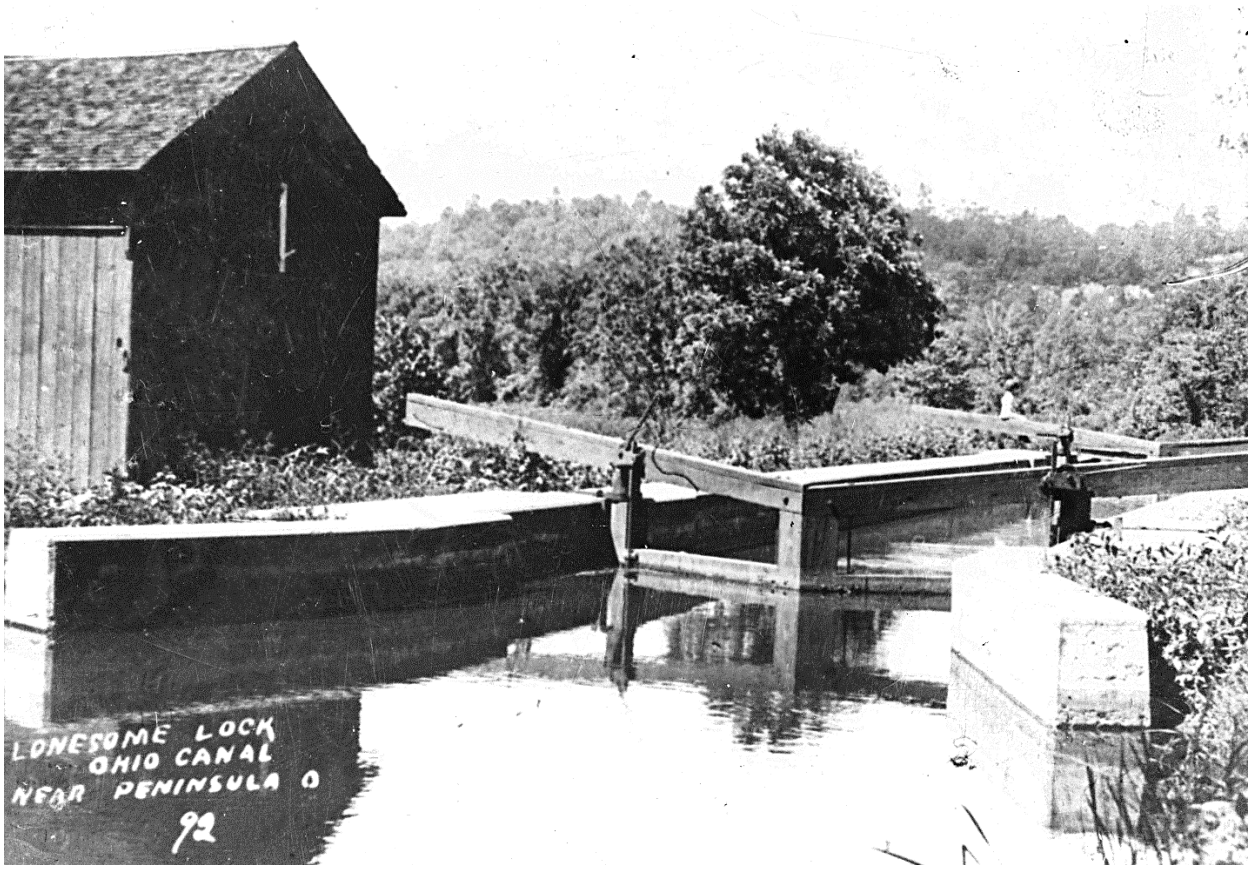


Figure 2-28: Lock 31 (Lonesome/Lost Lock), 1892 (Louis Baus Canal Photograph Collection, The University of Akron, University Libraries Archival Services).



Figure 2-29: Mules and canal boat at Pinery Narrows, ca. 1890–1900 (CVNP slide 7.1-39).



Figure 2-30: State Repair Boat #2 just below 14 Mile Lock in front of Wilson's (Alexander's) Mill, 1880 (Cleveland Public Library/CVNP CC-13).



Figure 2-31: Lock 37 (14 Mile Lock), ca. 1895 (CVNP Slide 90w).



Figure 2-32: Lock 37 (14 Mile Lock), looking south along canal, 1902 (Louis Baus Photograph Collection, The University of Akron, University Libraries Archival Services).



Figure 2-33: Bridge over canal at Stone Road, 1896 (CVNP Slide 7.1-5).



Figure 2-34: State Boat #1 from Stone Road Bridge, 1900 (CVNP Slide 7.1-44).



Figure 2-35: Lock 39 (11 Mile Lock) near Rockside Road, ca. 1900s (Louis Baus Photograph Collection, OEC_46, The University of Akron, University Libraries Archival Services).



Figure 2-36: Group of women posing on bridge adjacent to Lock 39 (11 Mile Lock), ca. 1910s (Louis Baus Photograph Collection, The University of Akron, University Libraries Archival Services).



Figure 2-37: Lock 39 looking southeast toward Canal Road, 1916. Fences, overhead utility lines, structures, and forest are visible on the slope opposite the towpath (Louis Baus Photograph Collection, OEC_43, The University of Akron, University Libraries Archival Services).



Figure 2-38: Lock 39 (11 Mile Lock) and overflow, 1916 (Louis Baus Photograph Collection, OEC_50, The University of Akron, University Libraries Archival Services).

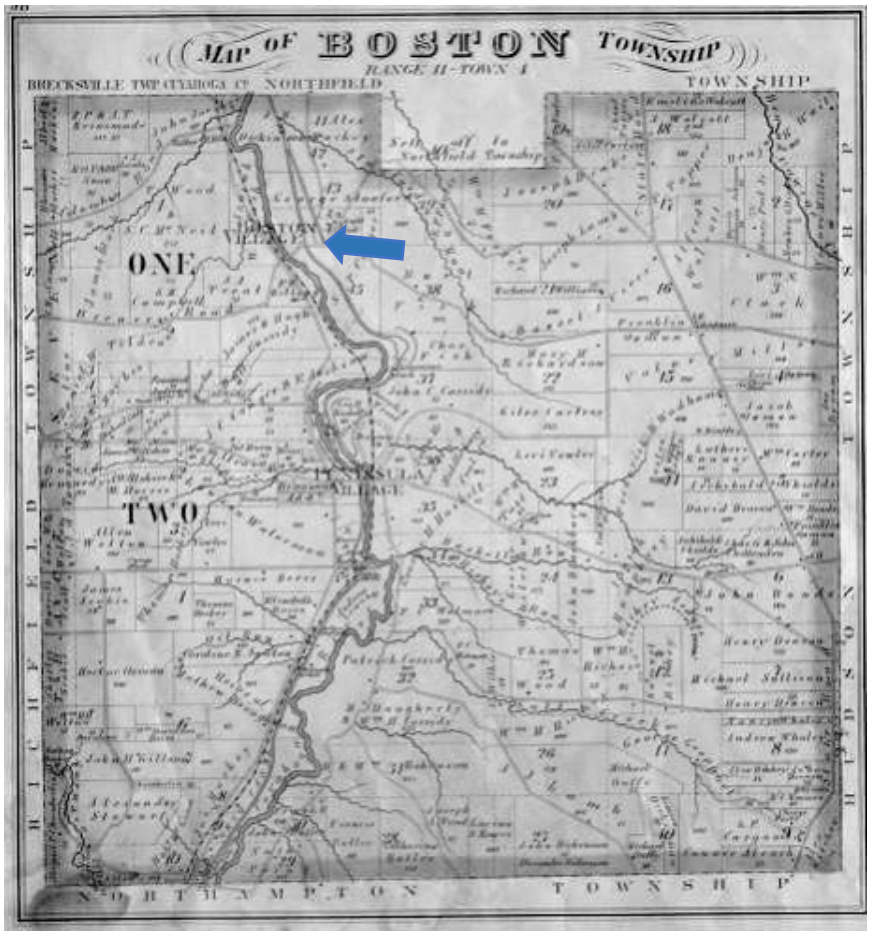


Figure 2-39: Map of Boston Township, 1874. The arrow identifies Boston Village (Peninsula Library and Historical Society).

The Cuyahoga Valley Railway was constructed between 1873 and 1880, providing an alternative to canal transportation through the valley. Railway stations were constructed in Independence, Boston, Peninsula, Everett, Ira, and Botzum. The railway ran along the west side of the river and canal until it reached Peninsula, where it crossed over to the east side of the valley.[156] The railway was incorporated into the Baltimore and Ohio Railroad (B&O) system in 1890, but nagging financial problems led to the railroad's bankruptcy in 1894. It resumed operations in 1895 under the name Cleveland Terminal and Valley Railway.[157]

The Valley Railway greatly impacted towns along the canal corridor. At Peninsula, the river was diverted to make room for the railway, cutting off the peninsula that lent its name to the village. A hotel and shop were moved and a passenger station and freight buildings were built to accommodate railroad use (see Figure 2-40). During this time, many of the older Greek Revival buildings constructed during the canal boom were remodeled to fit Victorian era tastes; for example, the Bethel Church was updated as a Gothic Revival building in 1889 (it is now known as the Gothic Revival Bronson Memorial Church).[158] In Boston, a new cluster of development was established on the west side of the Cuyahoga River in association with the railroad station, opposite canal-era buildings and roads oriented to the canal on the east side of the river (see Figure 2-42 through Figure 2-45).

[156] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*.

[157] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 90.

[158] Hunker and Grabowski, "An Historical and Tourist Guide to Peninsula and the Ohio Canal."

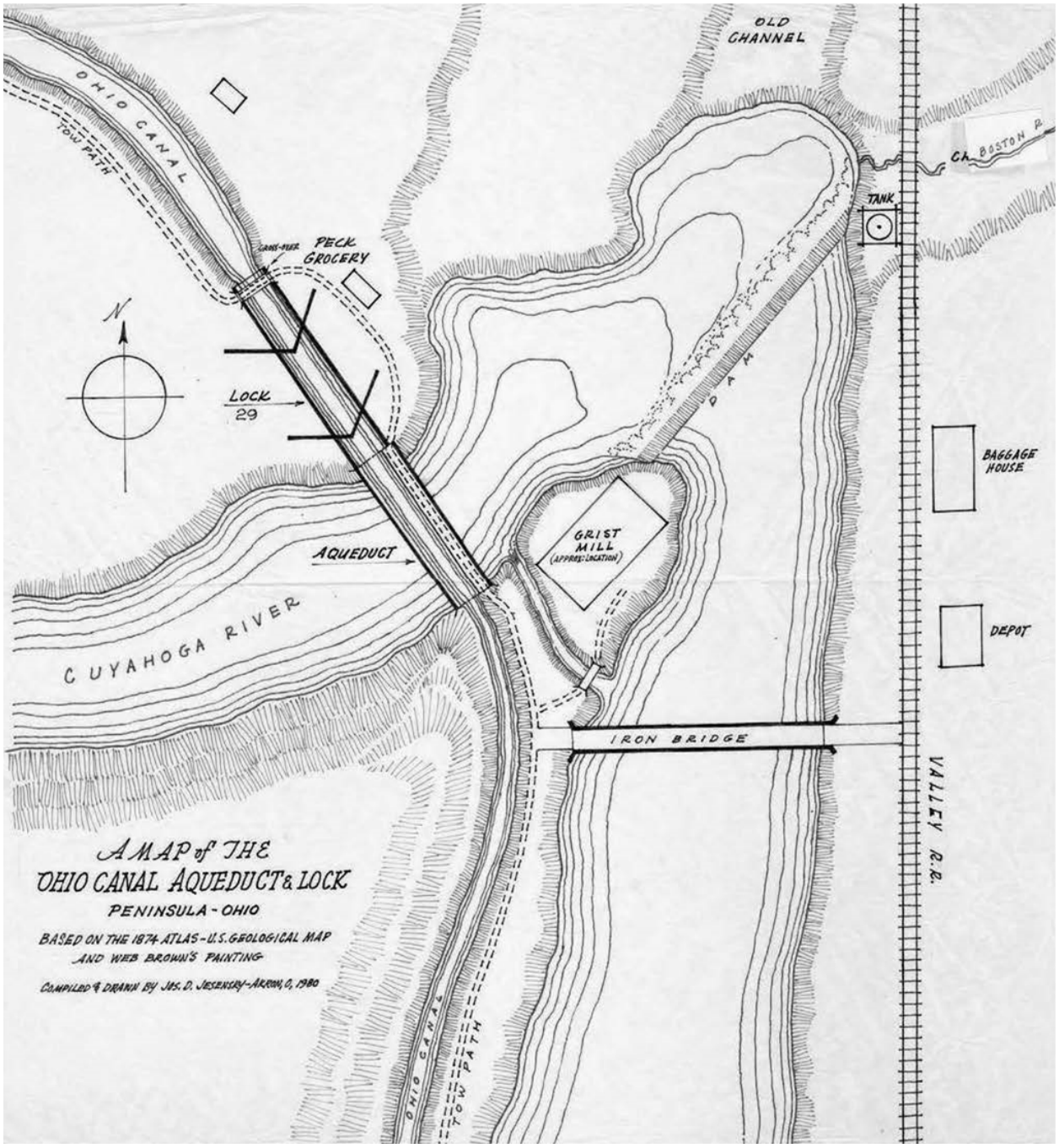


Figure 2-40: Peninsula Aqueduct and vicinity map, including Valley Railway, 1874 (Jesensky, 1980, via Heberling, 2019).

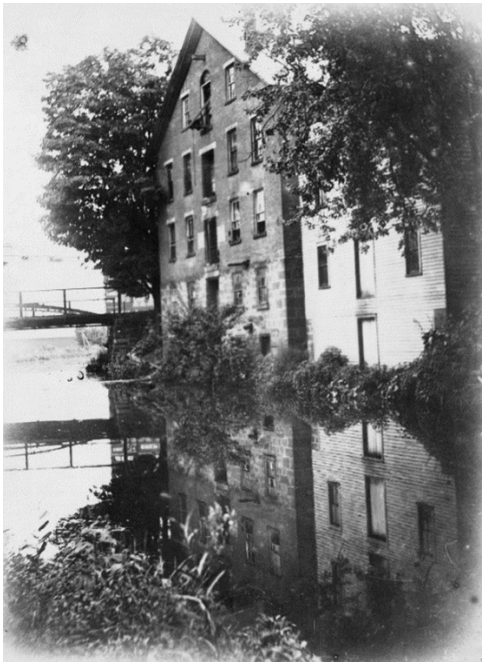


Figure 2-41: Grist mill at Peninsula, 1902 (CVNP 90cc).



Figure 2-42: Boston Mill Train Depot, 1910 (National Park Service Collection).

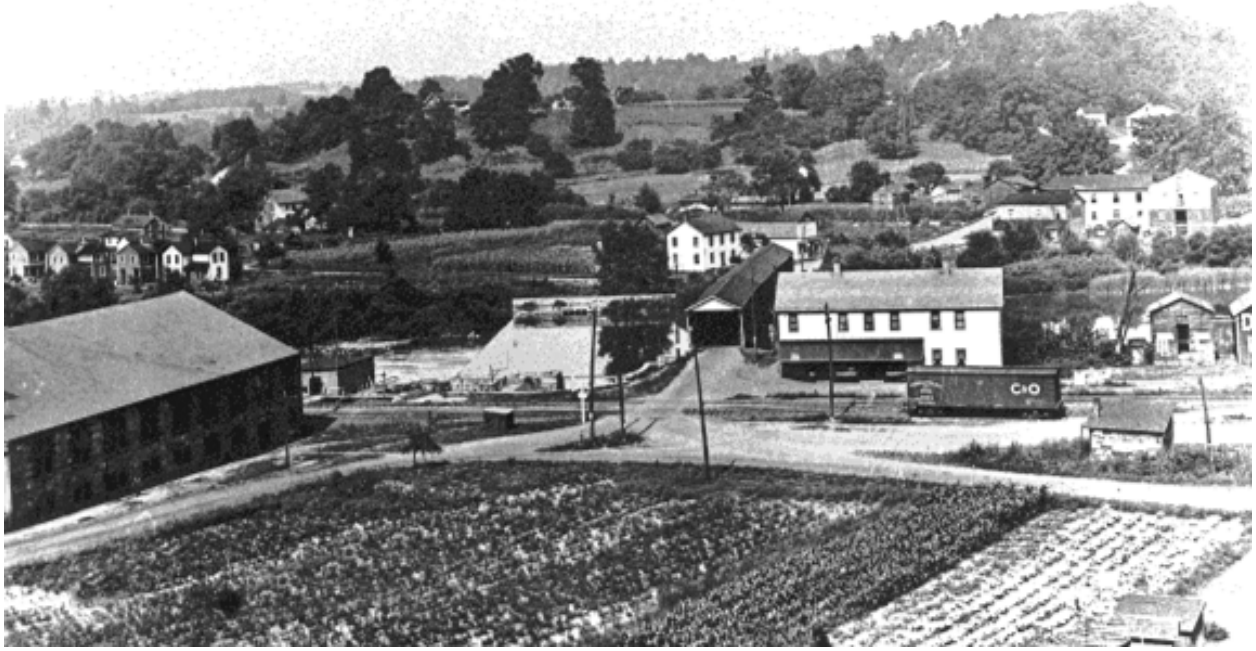


Figure 2-43: Boston from the west, 1910. The railroad and Boston Mills Store are prominent in the foreground, adjacent to crop fields (Boston Township).

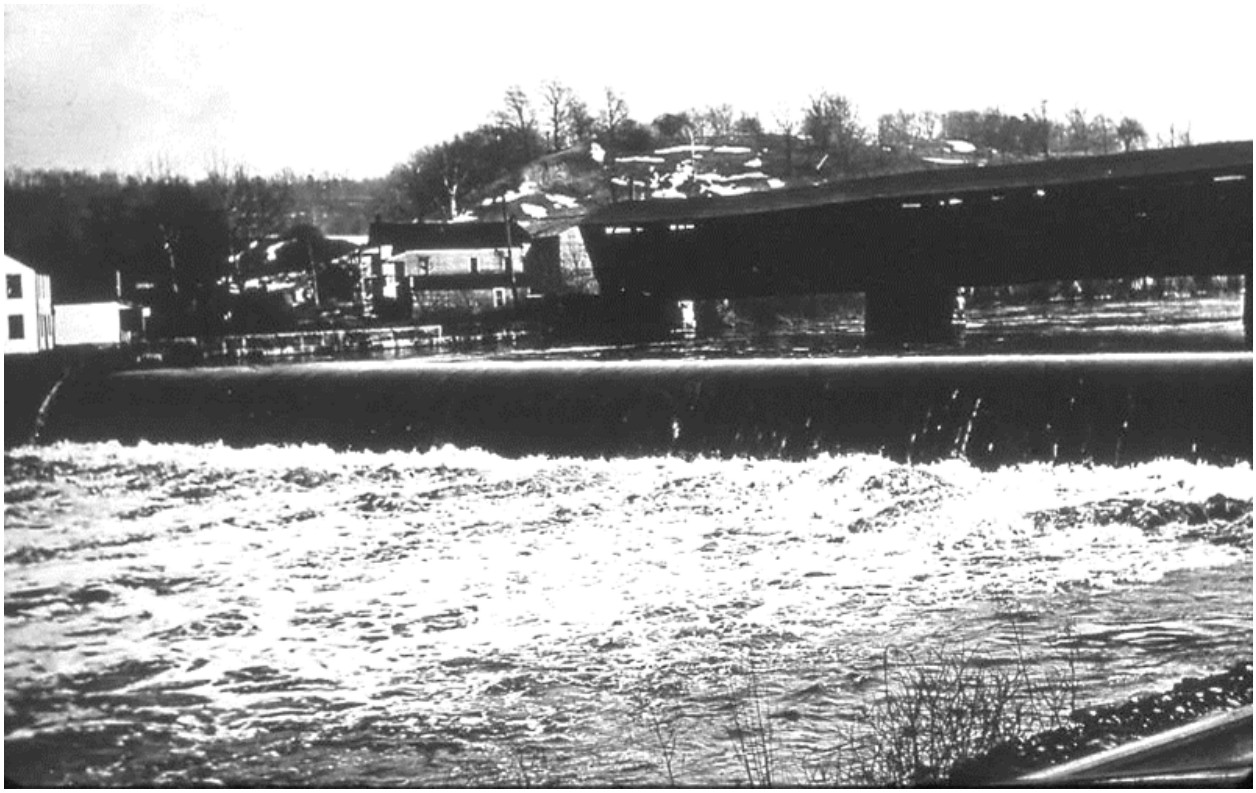


Figure 2-44: Boston from the west side of the Cuyahoga River, before 1913. Note J. Brown Tavern at end of bridge (CVNP Slide 7.1-50).



Figure 2-45: Lock 32 looking south toward Boston, 1908 (Louis Baus Photograph Collection, OEC_112, The University of Akron, University Library Archival Services).

Farming continued to be a major industry for valley residents who could take advantage of first the canal and then railway access to distant markets.[159] The 1880 Federal Non-Population Census recorded 4169 farms in Cuyahoga County, most between 20 and 100 acres and cultivated by the owner. Ownership patterns were similar in Summit County, which had 2,850 recorded farms in 1880. Typical livestock included horses, milk cows, other cattle, sheep, swine, and poultry; during this period, farms continued to emphasize dairy production. Other typical crops included hay, potatoes, and corn. Straw, maple sugar products, and honey, wool, and beans were sold in smaller quantities. Orchards also expanded in the years after the Civil War.[160]

Local roads further developed in the Cuyahoga Valley during this period, with formalized automobile routes frequently following centuries-old trails in and out of the valley. An 1856 map of Summit County identifies what are now Riverview Road and Akron–Peninsula Road and primary routes parallel to the Cuyahoga River; numerous routes across the valley, including Streetsboro Road and Hines Hill/Boston Mills Road, were also established by this time. Roads following the routes of Canal Road, Stone Road, and Rockside Road are visible in historic photographs, with accompanying overhead electrical lines.

As segments of the canal were abandoned or acquired by railroads, the portions of the canal still owned by the State of Ohio became increasingly unclear. A three-man canal survey commission was established in 1888 "to establish the boundaries and lines of canals, canal basins, reservoirs, etc., by an accurate survey -and to define and protect the ownership and titles of the state in and to all lands belonging to and

[159] Carolyn Zul, "Jonathan Hale Farm," Cleveland Historical, accessed November 19, 2020, https://clevelandhistorical.org/items/show/338.

[160] United States Bureau of Census, Non-Population Schedule, Report on Statistics of Agriculture, 1880.

connected with said canals."[161] The survey resulted in extensive documentation of the canal corridor (see Figure 2-46), and in 1902 the legislature declared that the northern division of the Ohio & Erie Canal from Cleveland to Dresden would be maintained as a public canal.[162] While the northern portion of the canal saw numerous repairs and increasing industrial activity, most of the southern portion of the canal between Dresden and Portsmouth was abandoned by 1911.[163]

As the canal's viability for freight transport declined, recreational craft overtook the waterway (see Figure 2-47 through Figure 2-50.) By the 1890s, traffic on the canal was described as primarily "converted freighters, taking church and picnic groups on short jaunts to nearby picnic groves along the canal."[164]



Figure 2-46: Survey of Boston and Stumpy Basin showing plats and canal features, 1892 (Cuyahoga Valley National Park Archives).

[161] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 47; citing Bogart, Internal Improvements and the State Debt, 132.

[162] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 47; citing Bogart, *Internal Improvements and the State Debt*, 138, 161.

[163] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*,48.

[164] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 47; citing Bogart, *Internal Improvements and the State Debt*, 130-131; Woods, *Ohio's Grand Canal*, 59-61.

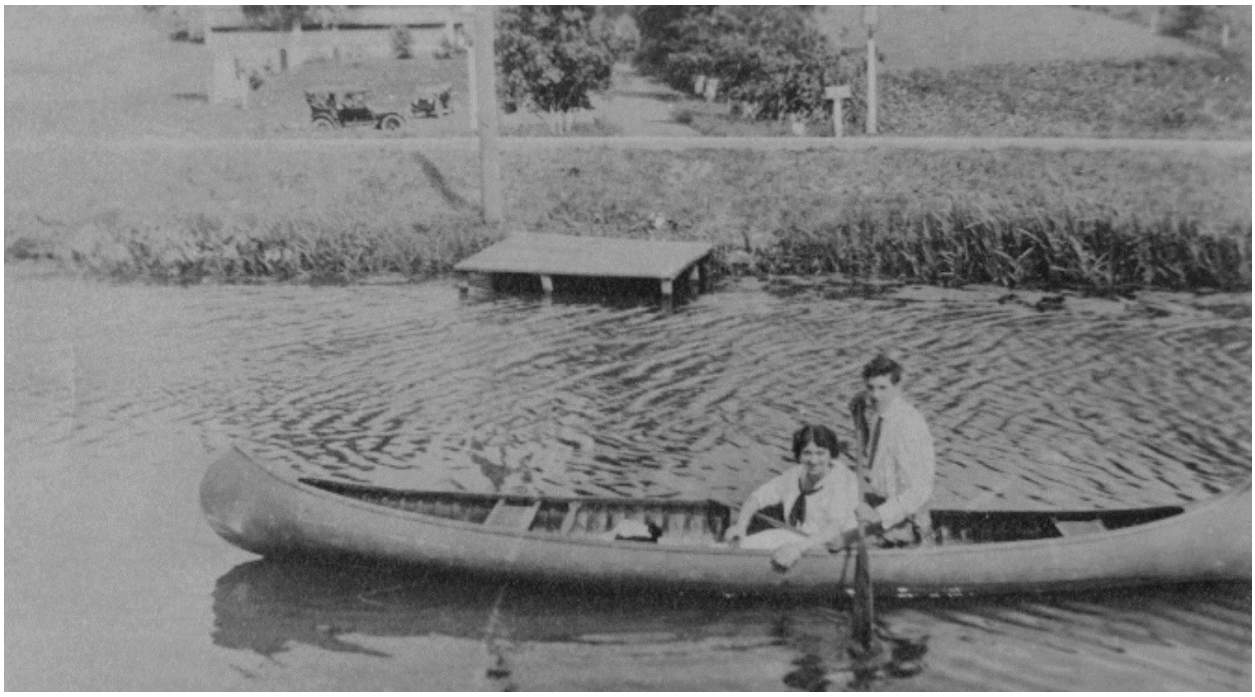


Figure 2-47: Recreational canal users, undated (CVNP 90a).

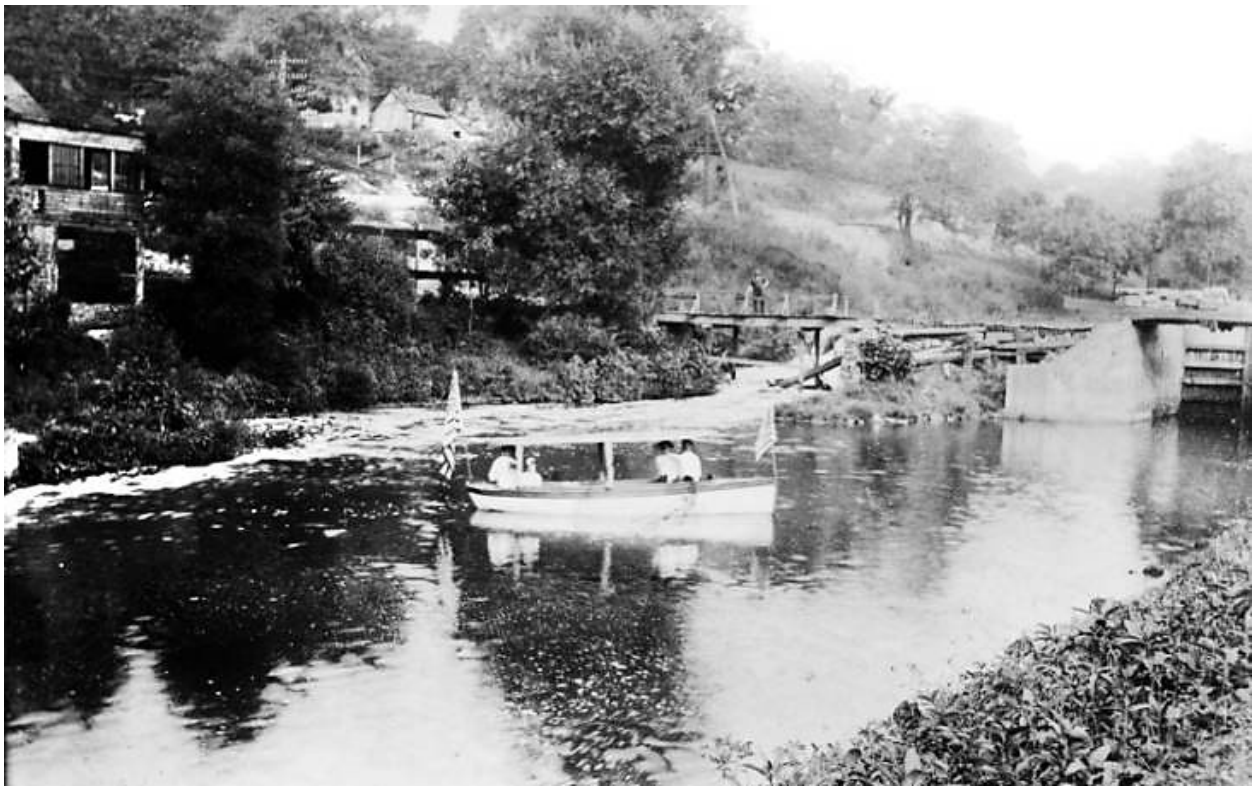


Figure 2-48: Excursion boat near Lock 39, 1912 (Louis Baus Photograph Collection, OEC_48, The University of Akron, University Libraries Archival Services).

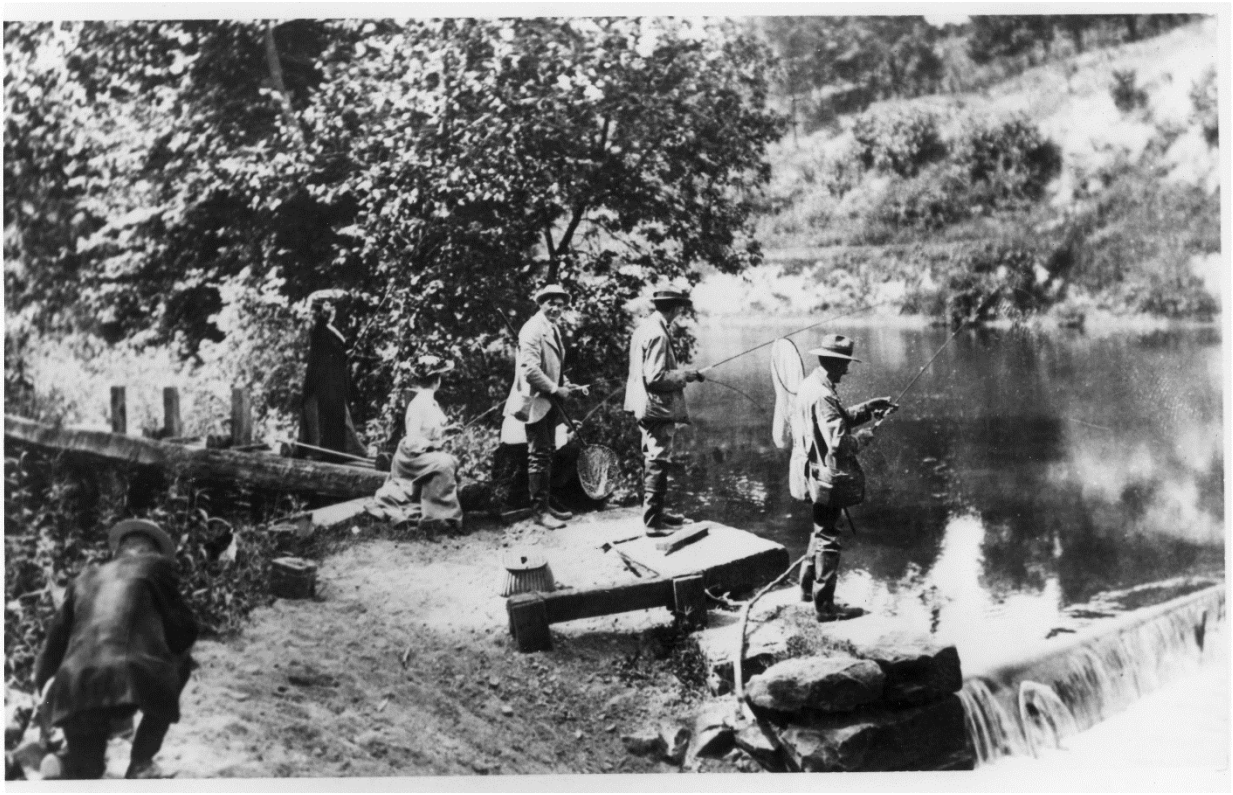


Figure 2-49: Picnicking at the Pinery Dam and feeder gate, undated (CVNP Slide CA-1).

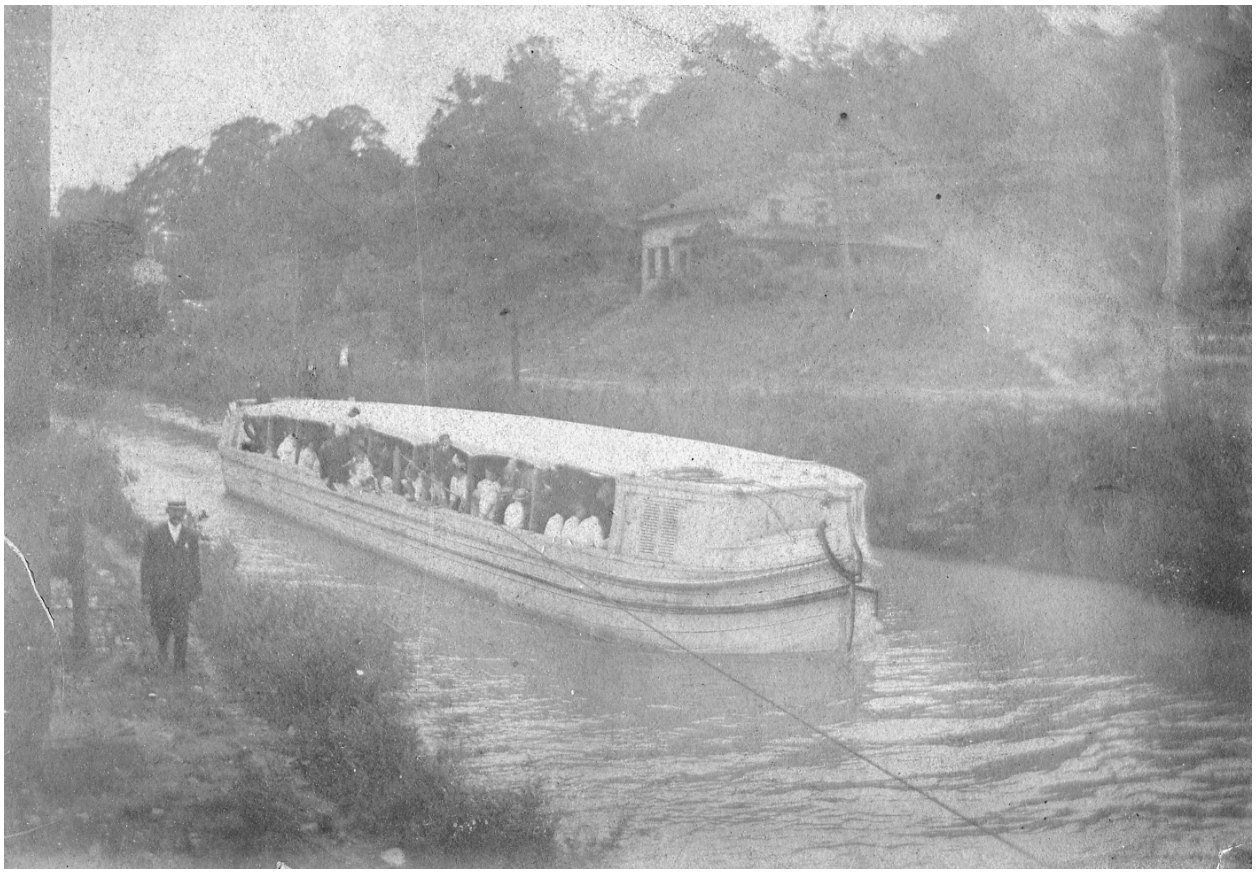


Figure 2-50: Sunday boat ride along Canal Road, ca. 1900 (CVNP Slide CA-8).

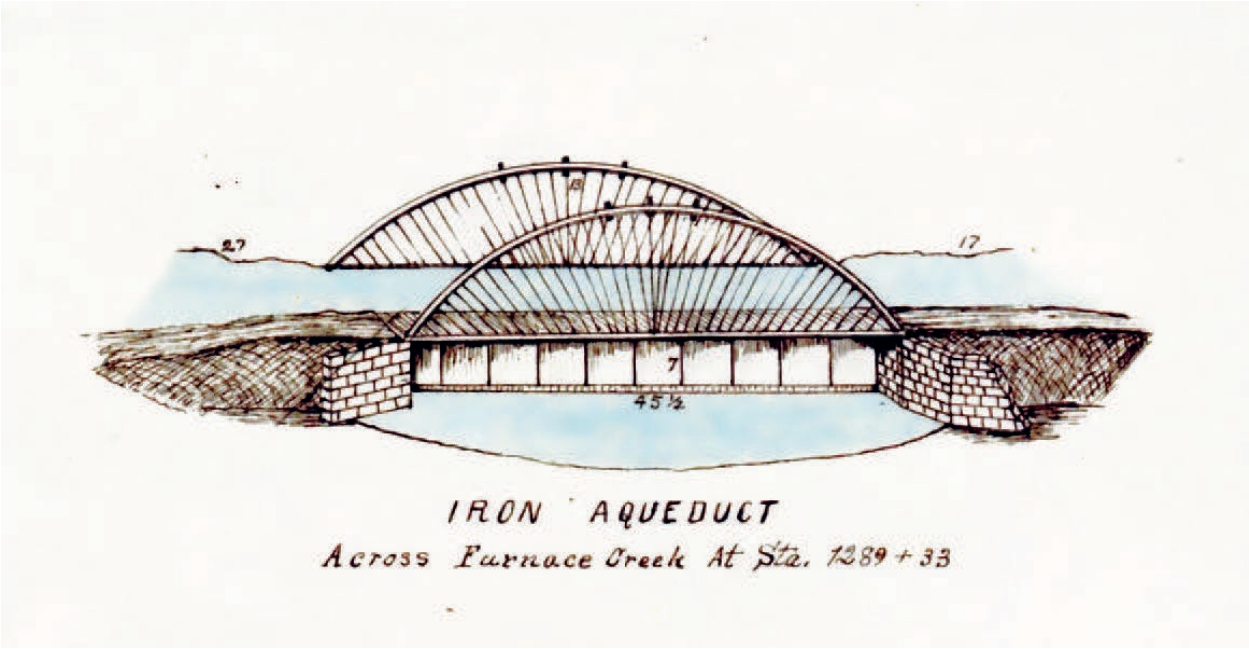


Figure 2-51: Illustration of Furnace Creek Aqueduct, 1892 (Map of the Ohio Canal, Cuyahoga and Summit Counties, Ohio, D.C. Kennon, 1892).

In 1903, the Board of Public Works succeeded in proposing a comprehensive rehabilitation program for the canal. The primary drivers of this program were the needs to adapt the canals to use by modern boat traffic and to maintain the flow of water for the numerous waterpower leases held by private companies. A major rehabilitation of the northern division occurred from 1905–1909.[165] During 1905–1906, the canal prism was dredged between Akron and Cleveland and all canal locks (except recently-replaced Lock 29) in the Cuyahoga Valley were "rebuilt" or repaired.[166] Remaining features including one culvert, two sluices, and the Galley Run Mudcatcher were addressed in 1906–1909.[167] In contrast to previous repair efforts, concrete was used as the primary building material (see Figure 2-52).[168]

[165] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 61.

[166] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 57.

[167] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 48; citing James Dillow Robinson, "Canal Maintenance and Recollections," *Towpaths 17* (1979), 9-10.

[168] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 48.

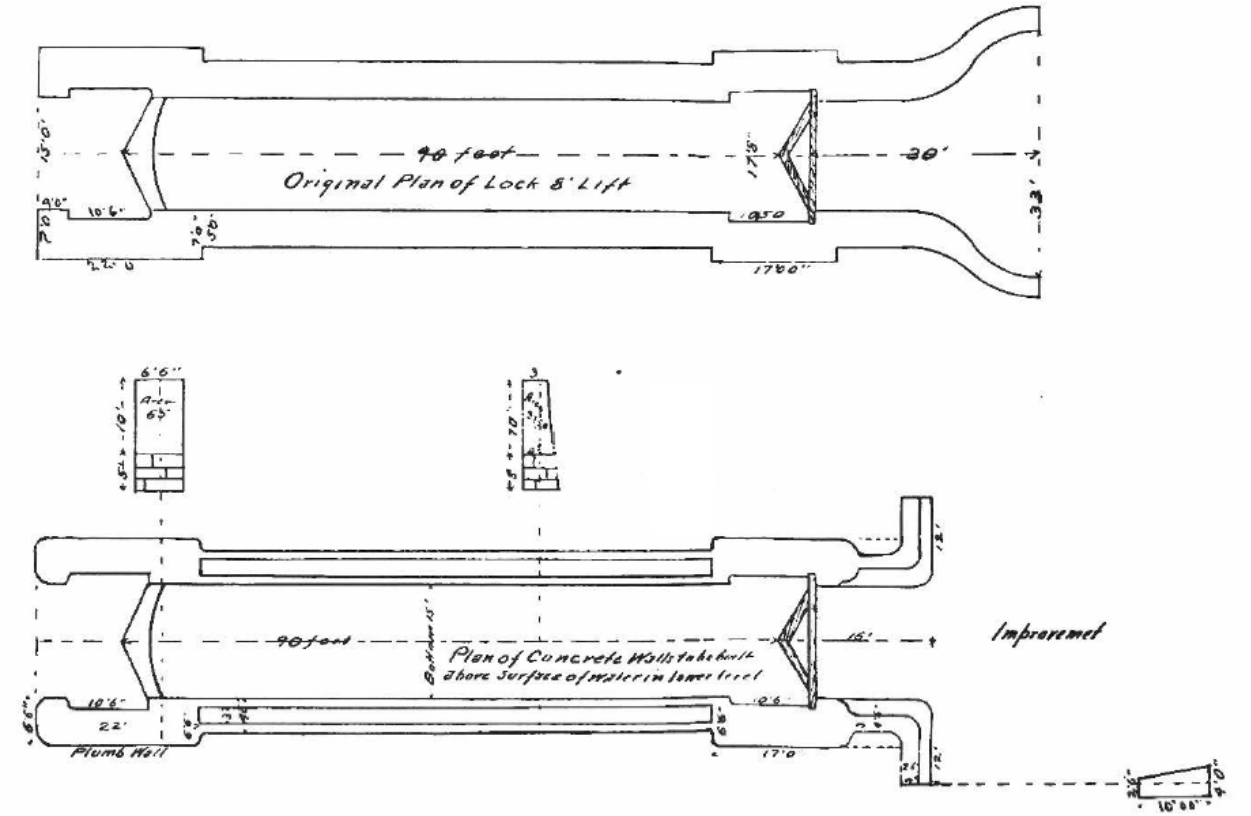


Figure 2-52: Plan for rebuilt locks on the Ohio & Erie Canal, 1905 (Contract for the Improvement of the Northern Division of the Ohio Canal between the Board of Public Works of Ohio and McGarry & McGown, February 14, 1905, and Contract for the Improvement of the Northern Division of the Ohio Canal between the Board of Public Works of Ohio and P.T. McCourt, February 14, 1905, Ohio Historical Society, Columbus).

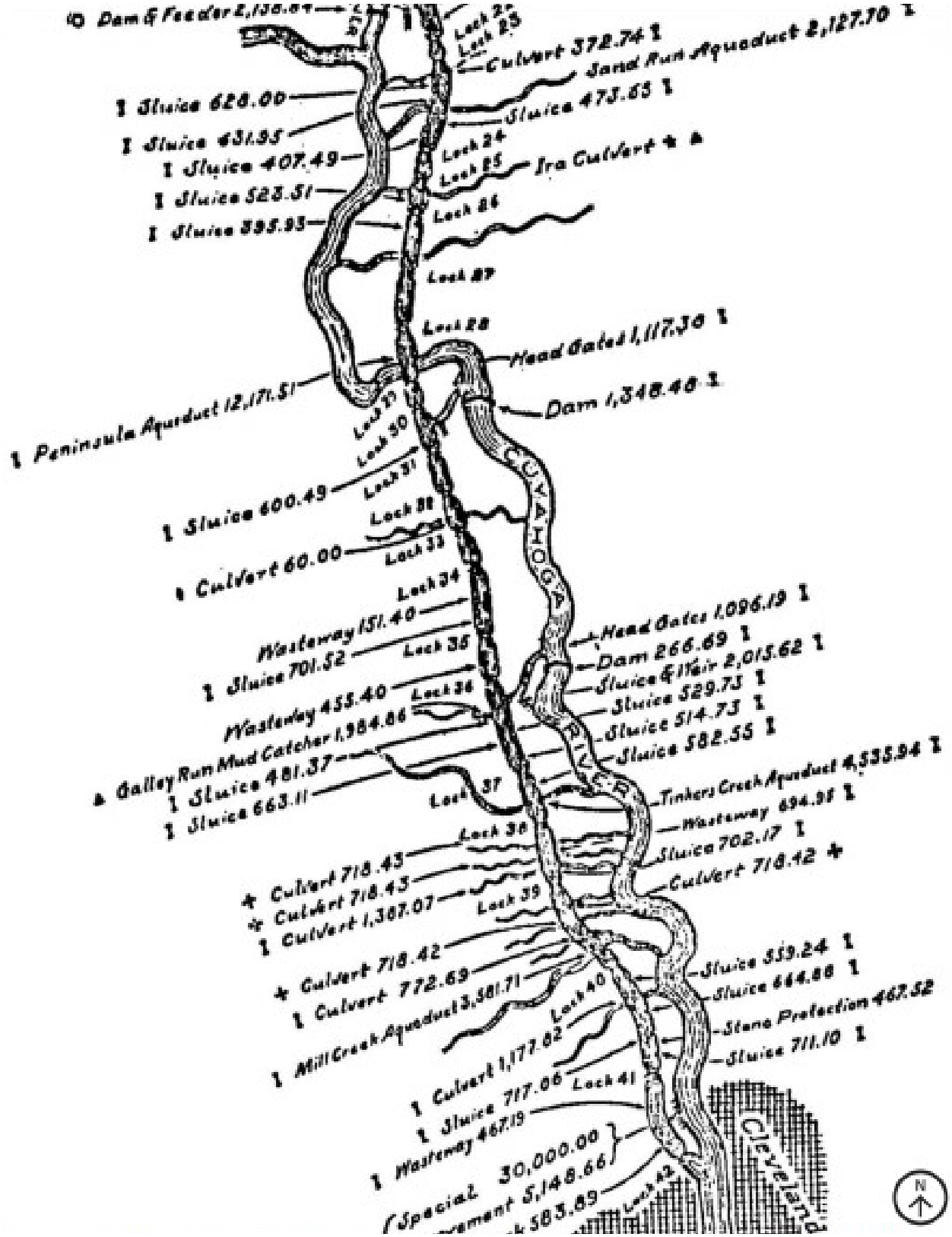


Figure 2-53: Canal structures rebuilt during the 1905–1909 rehabilitation program, 1909 (Ohio Board of Public Works, 71st Annual Report).

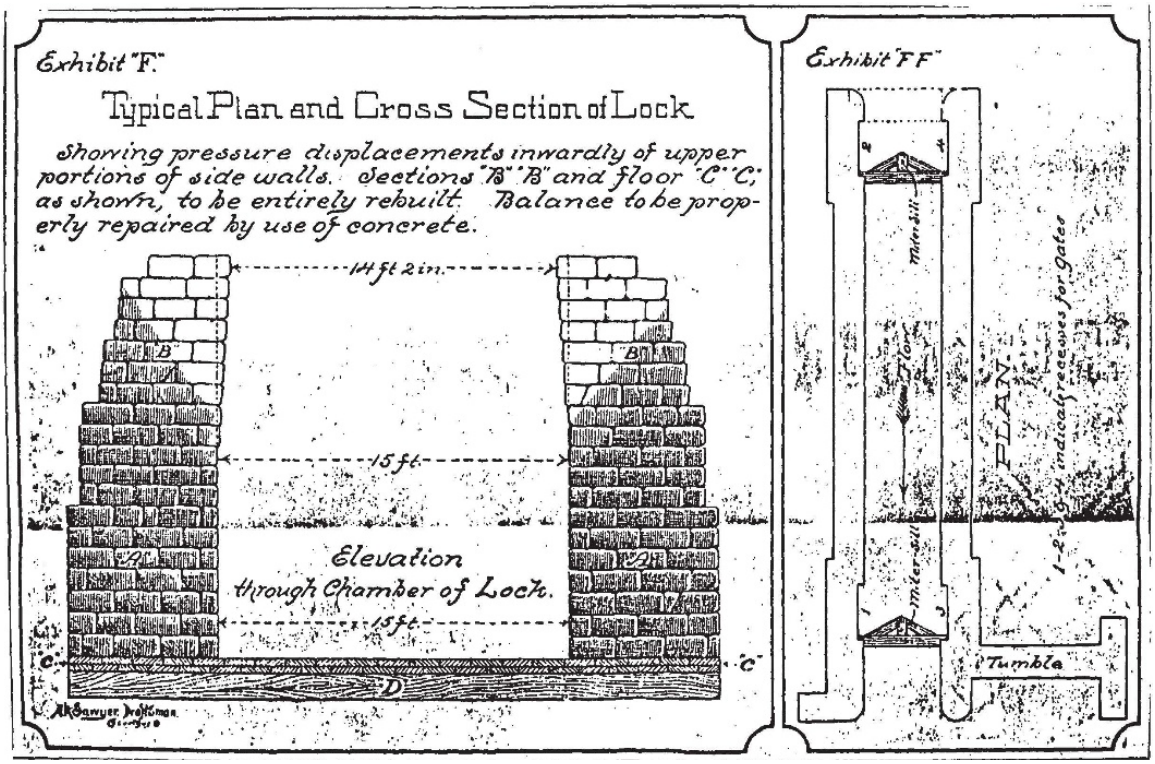


Figure 2-54: Typical Plan and Cross Section of Lock dictating the use of concrete (Scrattish, Historic Structure Report- Ohio & Erie Canal).

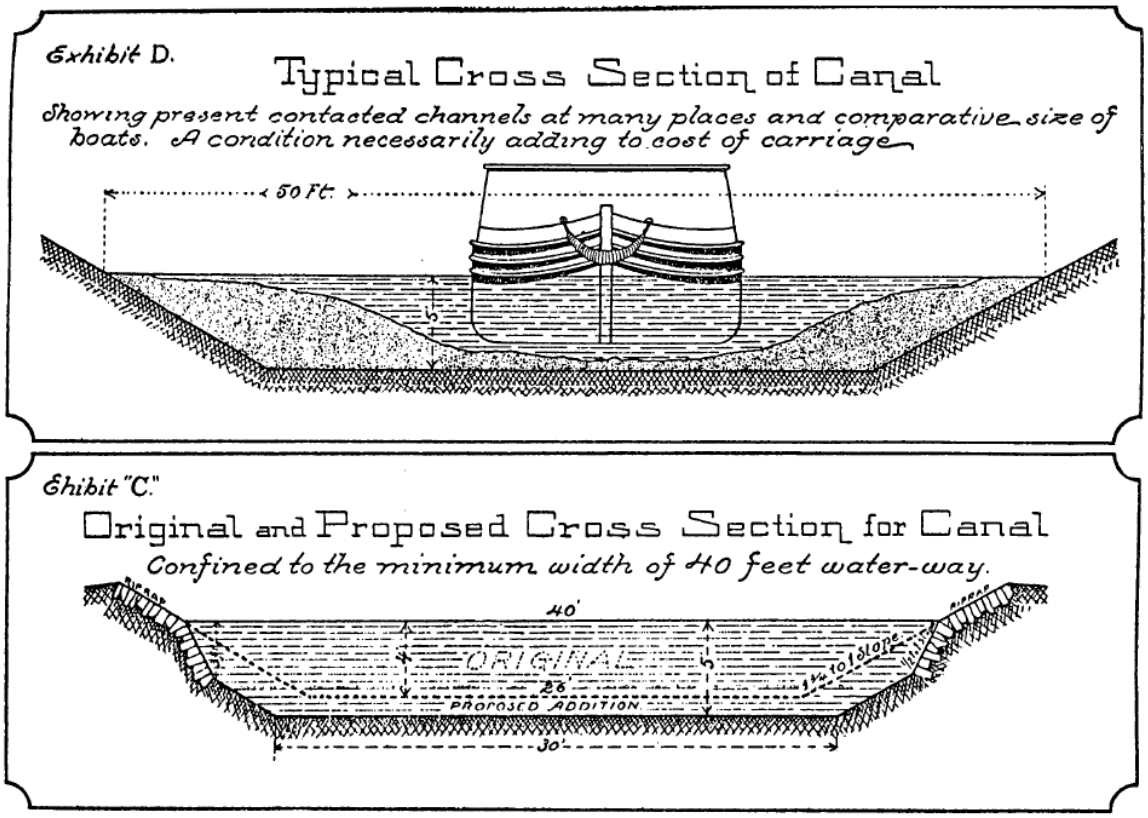


Figure 2-55: Existing and proposed canal prism improvements, 1905 (Ohio Board of Public Works, 67th Annual Report).

These upgrades kept the canal serviceable for its growing number of industrial users, including the Jaite Paper Mill, founded in 1905 and constructed using the same concrete technology used to repair the canal. The Jaite Mill was located between the canal and the railway near the mouth of Brandywine Creek and was fed by an artesian well. The mill first produced paper used for flour bags using a cylinder machine; a second machine added later created paper from rope. In 1919, the mill expanded into fertilizer bags and bread sacks. The second and third cylinders were rebuilt in 1926 to create continuous rolls of paper used in multi-walled cement bags.[169]

Charles Jaite also purchased land on Riverview Road in 1906 to build company housing (see Figure 2-56).[170] During its heyday, the mill provided jobs for both local residents and immigrant workers who lived in the company town. Unlike many other company towns, there was no company-issued money, and workers were not required to live in company quarters. A company whistle sounded regularly to summon workers from the dormitories or nearby Boston and Peninsula.[171]

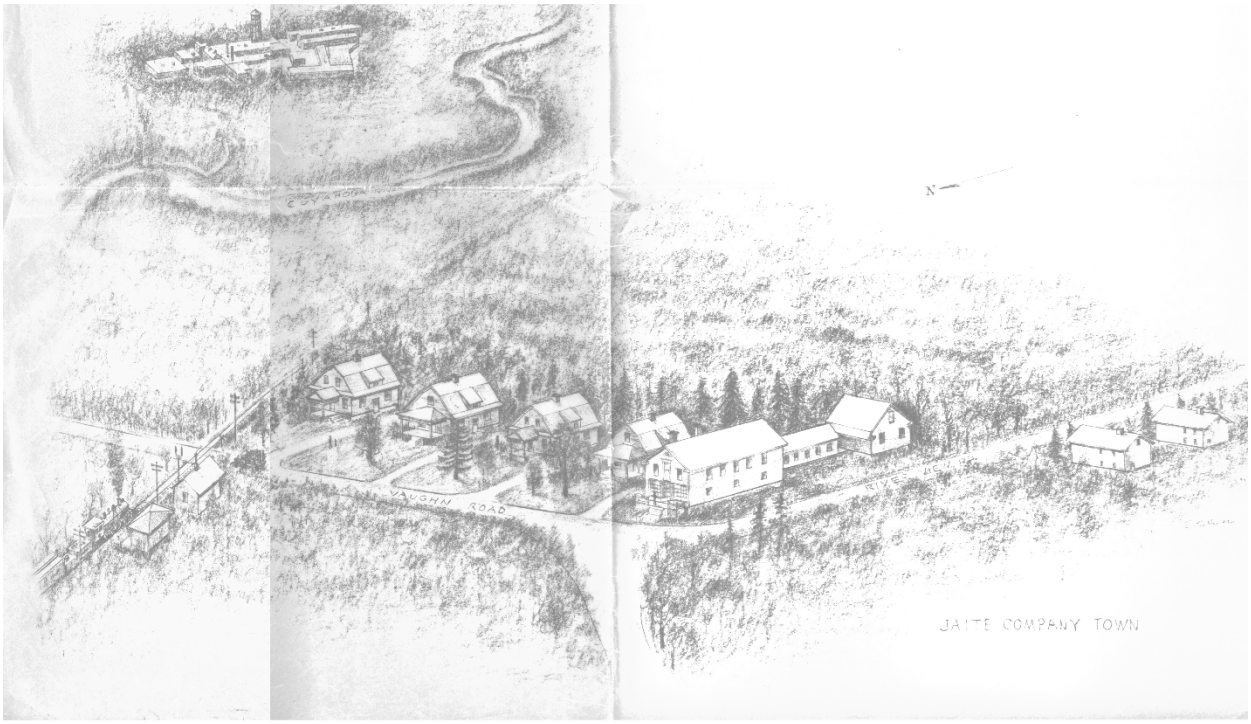


Figure 2-56: Birds-eye drawing of Jaite Company Town, undated (CVNP 15298/6/28).

A devastating flood in March of 1913 caused heavy damage throughout the Ohio & Erie Canal and ended the use of the overall canal route for freight transportation (see Figure 2-57 through Figure 2-59). A 16-mile section of the canal from Akron north to Brecksville (the Portage Summit) was entirely destroyed and effectively abandoned. After the flood, the state repaired and kept the northern portion of the canal open between Cleveland and Dresden. Finally, in July 1929, this section was also abandoned for transportation purposes. Maintenance of this section continued to provide water for the state's hydraulic

[169] National Park Service, "Jaite, a Paper Mill and Company Town," accessed May 2021, https://www.nps.gov/articles/000/jaite-a-paper-mill-and-company-town.htm; and John P. Debo, Jr., memorandum to Regional Director, Midwest Region, "Jaite Mill Historic District National Register Nomination Boundary Decrease," October 25, 1993, on file at Cuyahoga Valley National Park.

[170] National Park Service, "Jaite, a Paper Mill and Company Town," accessed May 2021, https://www.nps.gov/articles/000/jaite-a-paper-mill-and-company-town.htm.

[171] National Park Service, "Jaite Mill," Cuyahoga Valley National Park Guest Column, August 2006, on file at Cuyahoga Valley National Park.

leases along the route, including the lease to American Steel and Wire Company, in effect from 1913 to 1992.[172]

The long decline of the Ohio & Erie Canal also saw glimmers of the early preservation movement. The canal had been utilized for recreational purposes since the 1890s[173] and the creation of Metropolitan Parks Districts in Cuyahoga County in 1917 and Summit County in 1921 cemented this land use in the Cuyahoga Valley.



Figure 2-57: View of flood damage in Peninsula, 1913 (Summit County Historical Society).

[172] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 57.

[173] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47.



Figure 2-58: Water Street, Boston, underwater during flood, 1913 (CVNP slide 7.1-51).



Figure 2-59: Flood damage in Boston, 1913 (CVNP Slide 7.1-61).

Chronology

Early 1840s	Dredging increased the maximum load of canal boats from 40-60 tons. This was typically added to the towpath embankment to shore up sections in decline.[174]
1840	Pennsylvania and Ohio (P&O)/Mahoning Canal opened, ending the Ohio and Erie monopoly on transporting goods through the state. This officially marked the beginning of the decline of the Ohio & Erie Canal. [175]
1844	Peninsula Aqueduct completely rebuilt. [176]
1845	Tinker Creek Aqueduct reconstructed North of initial wooden structure.[177]
1848	Col. Charles Whittlesey described mounds, villages, and earthen fortifications constructed by Indigenous peoples between Cleveland and Akron.
1851	Canal trade peaked, but travel hindered by drought.[178]
1860	Furnace Run Aqueduct constructed.[179]
June 2, 1861	Ohio State Legislature passed an act requiring public works of the state be leased to the highest bidder. The Canal was transferred to a syndicate of 10 operators and did well as a business between 1861 and 1877. The syndicate performed routine maintenance including dredging and lock repairs. Business was bolstered by the Civil War, when the lock was used to move grain and other freight. [180]
1869	Lock 29 repaired. [181]
1872	Peninsula Aqueduct completely rebuilt.[182]
Summer 1875	Traffic decreased after the end of the Civil War. By 1875, transportation companies who control most of the shipping were disbanded and business was transferred to individual boat owners. [183]
1877	Furnace Run Aqueduct was completely rebuilt.[184]

[174] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 125.

[175] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 44.

[176] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 84.

[177] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 86.

[178] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 42.

[179] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 309.

[180] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 46.

[181] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 66.

[182] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 84.

[183] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 46-47.

[184] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 83.

December 1, 1877	The syndicate gave up its lease of the Canal. [185]
1880	Valley Railway service began through the Cuyahoga Valley[186]
1875	The Canal's northern terminus was relocated 3 miles south. The Railroad purchased the Canal bed between Lock Nos. 42 and 44.[187]
1878-1902	The Canal returned to Public Works ownership and deteriorated steadily. Some sections were abandoned or sold to railroads.[188]
1880	Coal mines near Akron were exhausted, eliminating main export good through the Valley via the Canal. This same year, the Valley Railway was completed from Cleveland to New Philadelphia. [189]
1881	The upper wall courses of Lock Nos. 32 and 33 were repaired.[190]
1882	Lock 29 was deconstructed and rebuilt as a masonry structure. Lock Nos. 30, 33 and 34 were also repaired this year.[191]
1882–1884	Floods severely damaged feeder components such as dams and filled the Canal with debris. The Valley Railway was extended to Tuscawaras County. [192]
1882	Lock 29 was completely rebuilt, and the Furnace Run Aqueduct was partially rebuilt.[193]
1883	Furnace Run Aqueduct was rebuilt after a flood carried away the aqueduct and one abutment.[194]
1886	Lock Nos. 27, 28, 30, 31, 32, 39 repaired.[195]
1887	Lock Nos. 24, 25, 26, 28, 30, 31, 32, 34, 37, 38 repaired. A telegraph line was installed along the towpath between Cleveland and Massilon by the Baltimore and Ohio Telegraph Company.[196]

[185] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47; citing Bogart, *Internal Improvements and the State Debt*, 115; Woods, *Ohio's Grand Canal*, 57.

[186] National Park Service, "History of the Valley Railway," accessed May 2021, https://www.nps.gov/articles/000/history-of-the-valley-railway.htm.

[187] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47.

[188] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47; citing Bogart, *Internal Improvements and the State Debt*, 115.

[189] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47.

[190] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 69-70.

[191] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 66-67, 70-72.

[192] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47.

[193] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 66 and 83.

[194] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 83.

[195] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 61-64, 66-69, 77-79.

[196] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*, 160.

1888–1892	Surveys of Ohio's canals were completed through a three-man canal survey commission (reduced to two men in 1892). The aim of the surveys was "to establish the boundaries and lines of canals, canal basins, reservoirs, etc., by an accurate survey – and to define and protect the ownership and titles of the state in and to all lands belonging to and connected with said canals."[197]
1889	Bethel Church in Peninsula remodeled in Gothic Revival style.[198]
1892	Lock Nos. 27, 32, 33, 34, 35, 39 and the Furnace Run Aqueduct were repaired.[199]
1893	Lock Nos. 34, 36, 37, and 38 were repaired.[200]
1895	Lock Nos. 24, 25, 27, 28, 30, 34, and 37 were repaired. The Furnace Run Aqueduct was completely rebuilt.[201]
1896	Lock Nos. 37 and 38 were repaired.[202]
1898	Destructive floods effectively ended commercial navigation on Canal south of Dresden. Although the northern section remained open, navigation became difficult, and repairs were conducted on Lock Nos. 24, 25, 28, 30, and 36. Recreational craft became the most prevalent traffic on the canal.[203]
1899	Lock Nos. 27, 28, and 32 repaired.[204]
1901	Concrete poured under Lock 27.[205]
1902	Legislation declared Miami and Erie and the Northern Division of Ohio and Erie to be retained and maintained for public use.[206] Once again, a destructive flood effectively ended navigation on the canal south of Dresden. Lock Nos. 27, 28, 29, 30, 31, 32, and the Furnace Run Aqueduct were repaired following the flood.[207] Moody and Thomas Mill in Peninsula sold in 1902 and enlarged sometime after transfer.

[197] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47; citing Bogart, *Internal Improvements and the State Debt*, 132.

[198] Hunker and Grabowski, "An Historical and Tourist Guide to Peninsula and the Ohio Canal."

[199] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 61-63, 69-72, 77-79, 83.

[200] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 70-77.

[201] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 59-64, 66-67, 70-72, 73, 83.

[202] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 73-75.

[203] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 47.

[204] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 63, 69.

[205] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 63.

[206] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 47; citing Bogart, *Internal Improvements and the State Debt,* 138, 161.

[207] Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 61-69, 83.

1903–1904	Detailed surveys helped to secure public funding to modernize the canal systems. Revenue from water leases were a factor.[208]
1905	Jaite Paper Mill construction began near Lock 34. The mill manufactured "blue line paper" used for flour bags and was connected to the Valley Railway and the Ohio & Erie Canal. Nearby, a company town formed to support mill operations and included homes, a general store, a post office, and a railroad station.[209]
1905–1906	Following the detailed report of 1903, funds were set aside to rehabilitate exiting canals and adapt them to modern traffic. These upgrades would also preserve the viability of the state's long-term water leases with various industries.[210]
	Upgrades from Akron to Cleveland involve dredging and replacement of built features in the Valley used concrete as a primary building material.[211] As part of these improvements, Lock Nos. 24, 25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 36, 37, 38, and 39 were rebuilt with concrete. Lock 29 was disassembled and rebuilt.[212]
	The Peninsula Aqueduct was rebuilt, Tinkers Creek Aqueduct Abutments replaced, and both aqueducts received steel truss and wood superstructures.[213] The Peninsula Feeder Complex was also redesigned and rebuilt.[214]
1908	Tumble lowered in Lock Nos. 33 and 34.[215]
1909	Major repairs were required on Lock 28 due to faulty concrete used in the 1905–06 improvements.[216]
1911	Ohio & Erie Canal from Dresden to Portsmouth formally abandoned.[217]
1912	Furnace Run Aqueduct north abutment failed and was replaced with significant repairs to other parts of the aqueduct.[218]
	The State of Ohio surveyed canal lands in state possession.[219]
March 1913	The most devastating flood in the history of the canal destroyed 16 miles of the Ohio & Erie Canal from Portage Summit to Brecksville, including Furnace Run

[208] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48.

[209] National Park Service, "Jaite Mill History."

[210] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48.

[211] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48.

[212] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48.

[213] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 86, 88.

[214] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 113.

[215] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 70-72.

[216] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 64.

[217] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48.

[218] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 83.

[219] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48.

	and Peninsula Aqueducts.[220] The flood severely impacted 17 states, killing 600 people and rendering 250,000 people homeless in the wake of its destruction.[221]
	Following the flood, the canal was maintained between Cleveland and Dresden for water leasing and potential lake to river barge canal route. Ultimately, the barge route shifted to Mahoning and Youngstown.[222] The American Steel and Wire Company maintained the northern section of the study area (encompassing Lock Nos. 37 through 39) per their lease with the State of Ohio. Tumbles were well maintained as they were necessary for industrial uses; however, locks received little maintenance under this lease.[223]
1915	Baltimore & Ohio Railroad purchased the Valley Railway.[224]
1917	Metropolitan Park Districts established in Cleveland County.[225]
1920	Akron Planning Commission funded "A Preliminary Report on Park Lands in the Cuyahoga Valley" to study the potential for creating an Akron Parks District.[226]
1920s	Significant areas of land were acquired by Parks Districts throughout the 1920s, including portions of the Brecksville and Bedford Reservations in the Cleveland Metropolitan Parks District and Sand Run Reservation in the Akron Metropolitan Parks District.[227]
1921	Boston Township Trustees submitted paperwork to the Probate Court of Summit County to establish the Akron Metropolitan Park District (AMPD) with the aim of protecting and improving Cuyahoga Valley.[228]
1925	As part of early preservation efforts, the Office of the Olmsted Brothers produced a general study of park, reservation, and parkway opportunities for the Metropolitan Park Board of Summit County.[229]
July 1929	Last section of Canal (Northern section formerly maintained for transportation) abandoned for navigational purposes.[230]

[220] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 48.

[221] "Paul Murphy Remembers the 1913 Flood," Cuyahoga Valley National Park, National Park Service, https://www.nps.gov/articles/000/paul-murphy-remembers-the-1913-flood.htm

[222] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 51.

[223] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 57.

[224] National Park Service, "History of the Valley Railway," accessed May 2021, https://www.nps.gov/articles/000/history-of-the-valley-railway.htm.

[225] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 57.

[226] Cockrell, *Administrative History,* 14.

[227] Cockrell, *Administrative History,* 13, 16.

[228] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 57.

[229] Olmsted Brothers, letter to Mr. E.D. Eckroad, President, Metropolitan Park Board of Summit County, Akron, Ohio, October 5, 1925, on file at Cuyahoga Valley National Park.

[230] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 51; citing Woods, *Ohio's Grand Canal*. 72-74.

Canal Abandonment and Reuse, 1929–1974

Canal corridor landscape changes from 1929–1974 are illustrated on drawing HP-3 (see page 2.74).

Following the closure of the Ohio & Erie Canal for transportation purposes in 1929, it continued to be maintained to fulfill hydraulic power and cooling water leases. These leases were managed by the State of Ohio and let to private industries and municipalities. Within the study area, American Steel and Wire Company, a subsidiary of U.S. Steel after 1901, maintained the canal north of the Pinery feeder from 1913 to 1992.[231] Over time, the canal corridor was managed in different ways in different areas: some portions were managed for recreation, others redeveloped, and much of the canal was abandoned and allowed to revert to nature.[232]

During the early 1930s, the Civilian Conservation Corps and Works Progress Administration both contributed to park development in the Cuyahoga Valley Region, working with the Metropolitan Park District (see Figure 2-60 and Figure 2-61). One project converted an abandoned Berea sandstone quarry used for canal construction into a recreational and picnic area. Recreational use of park areas boomed during the 1930s.[233]

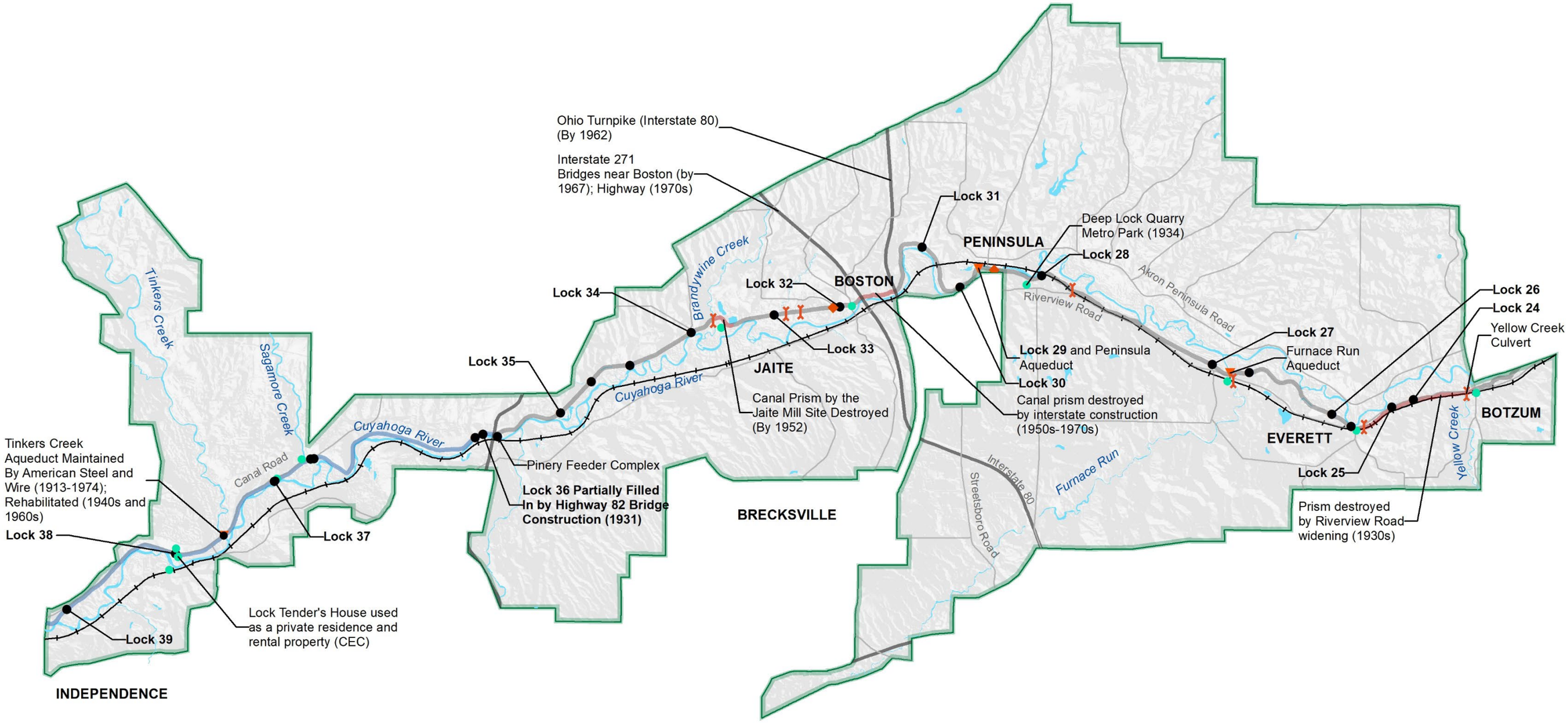


Figure 2-60: Brecksville Station CCC Camp, 1936 (Cleveland Metroparks).

[231] Ohio History Central, "American Steel and Wire Company," accessed June 2021, https://ohiohistorycentral.org/w/American_Steel_and_Wire_Company; and Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 129.

[232] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 51; citing Woods, *Ohio's Grand Canal*, 74-75.

[233] Cleveland Metroparks, "History," accessed June 2021, https://www.clevelandmetroparks.com/about/cleveland-metroparks-organization/history.



Legend

- CVNP Boundary (2021)
- River/Stream (2021)
- Ohio and Erie Canal (Abandoned)
- Ohio and Erie Canal (Maintained by American Steel and Wire, 1913-1992)
- Destroyed Canal Prism Segment
- Lock, Waste Structure, or Feeder
- Aqueduct
- Culvert
- Basin
- Key buildings along canal corridor
- Cuyahoga Valley Scenic Railway
- Highways
- Roads
- **BOSTON** Villages along the canal corridor

Sources

1. Park boundary data and water data from National Park Service, Cuyahoga Valley National Park
2. SKDG Canal Conditions spreadsheet, 2021
3. Ohio and Erie Canal Historic Structures Assessment, Herbling Associates, 2019
4. 1951, 1952, 1962, 1967, 1970, and 1982 aerials, HistoricAerials.com, Netronline; roads and canal prism change/condition
5. Drawing by Quinn Evans, Arcmap 10.8

0 3,000 6,000 12,000 Feet

1 inch = 6,000 feet

N

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Abandonment and Reuse 1929-1974 Historic Period Plan

October 2022



Figure 2-61: Civilian Conservation Corps worker building a retaining wall using stone from abandoned quarries (Cleveland Metroparks).

Physical changes were made throughout the canal corridor in this period. Some were made to facilitate the growing automobile transportation infrastructure; for instance, most of Lock 36 was filled in during construction of Route 82 in 1931. In 1953, the Tinkers Creek Bridge was constructed utilizing the stone abutments of the historic aqueduct. Other infrastructural changes were made by commercial interests. For example, the Pinery Dam was replaced in 1951 and was thenceforth known as the Brecksville Diversion Dam. This work was undertaken by the American Steel and Wire Company, as the water from the canal supplied their Cuyahoga Works. The new structure functioned similarly to the previous dam, but it was located slightly downstream. Due to an extra foot in height, the new Brecksville Diversion Dam submerged the early Pinery Dam in the dammed pond.[234] The American Steel and Wire Company maintained numerous canal structures in this period as a part of their lease.

Aerial photography from this period indicates that agriculture was still a dominant land use around the Cuyahoga Valley in the 1950s and 1960s. Where the land was uncultivated, forests began to reestablish. In 1952, the watered portion of the canal prism was easily distinguishable in the landscape; however, in the unwatered sections, forest was already encroaching on the prism (see Figure 2-63). Suburban development significantly increased around the canal corridor in the 1950s, 60s, and 70s, in step with the expansion of Ohio's interstate highway system. At the time, northeast Ohio was the most densely populated part of the state and garnered significant attention from highway planners. Interstate 77 was constructed around 1956 and divided Furnace Run Metropolitan Park, damaging its natural resources. Interstate 80 (The Ohio Turnpike) and Interstate 271 were constructed in the valley between Boston and Peninsula.[235]

Siltation and vegetation greatly impacted the appearance of the abandoned canal corridor. Pioneer species and invasive vegetation moved into the unwatered section of the canal. The prism was altered by roads and other modern construction, including interstate bridges. Without the presence of flowing water

[234] Heberling Associates, Inc. *Ohio & Erie Canal History and Historic Structure Assessment,* 73 and 448.

[235] Cockrell, *Administrative History*, 26.

and the maintenance required for navigation, the character of the canal eroded, especially in 'soft' infrastructure like berms and channels. In addition, urbanization of the areas surrounding the canal impacted views from within the canal corridor. Rather than from canal barges or from railway cars, visitors and residents experienced the landscape from their cars or on foot in the Metropolitan Parks.



Figure 2-62: Canal and river, unknown location, 1934 (CVNP Slide 7.1-103).



Figure 2-63: Abandoned canal prism, 1956 (CVNP Slide 7.1-35).



Figure 2-64: Remnant aqueduct foundation, 1961 (CVNP Slide 90k).

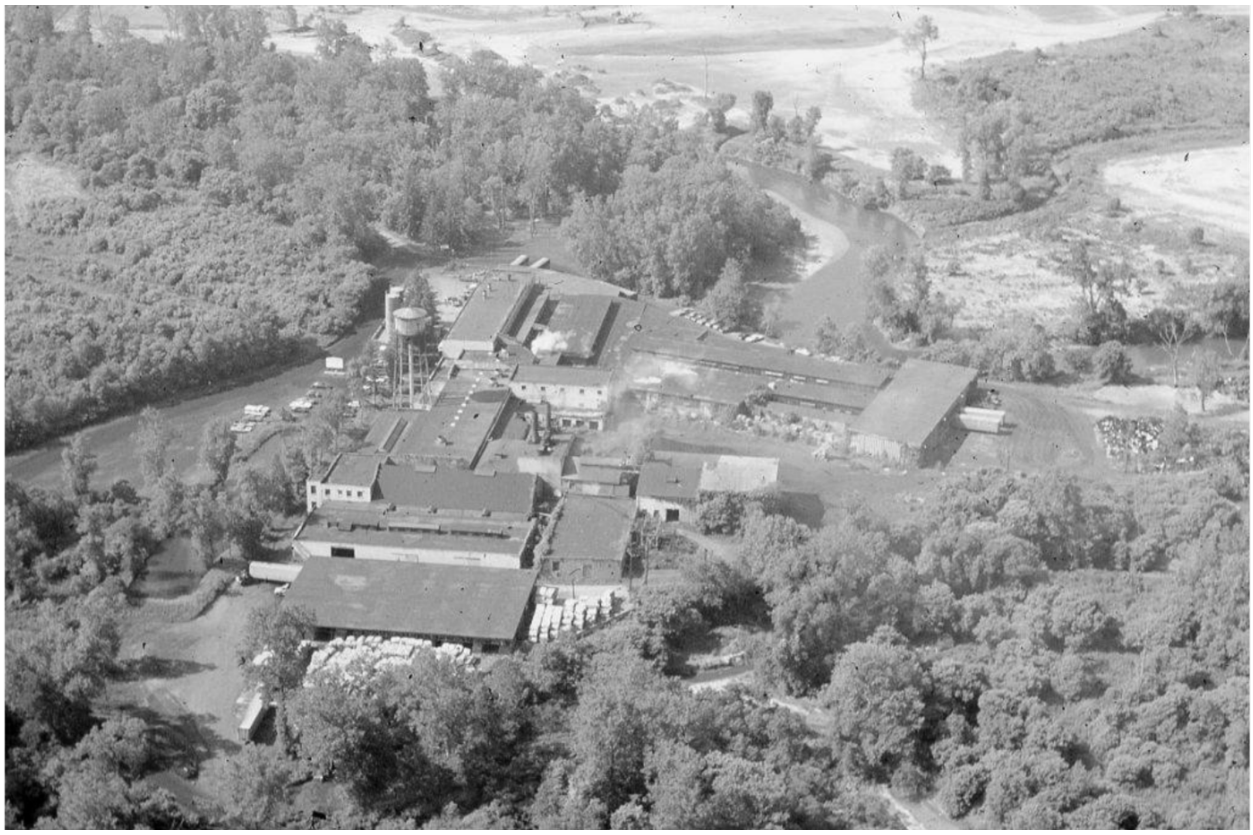


Figure 2-65: Aerial view of Jaite Paper Mill and the Cuyahoga River, 1974 (Summit Memory).

Some industrial uses were still in operation, including the Jaite Mill, in operation since 1905. In 1951, the Jaite family sold the mill to the National Container Corporation (see Figure 2-65). Following the sale and subsequent resales, the machinery was disassembled and the bag factory closed. Housing that was formerly a part of the Jaite Company was sold to private individuals. [236]

In 1966, a 1.5-mile section of the canal including three locks, an aqueduct, and two structures was designated as a National Historic Landmark.[237] This was later expanded to a 4-mile section that included locks 37, 38, 39, Tinkers Creek Aqueduct, the Lock Tender's House (Canal Exploration Center) and Alexander's Mill, nominated to the National Register of Historic Places in 1975 and listed in 1983.[238]

Throughout the 1960s and 1970s, preservation groups continued to fight to preserve the character of the Cuyahoga Valley, work that began in the 1920s. Many of these groups also united in support of creating a large public park in the valley. The mission, spearheaded by Lake Erie Watershed Conservation Foundation (LEWCF) member George Watkins, united Cleveland and Akron Metropolitan Parks Departments and multiple community leaders to form the Cuyahoga Valley Committee.[239] This committee garnered public support for a unified park between the cities of Cleveland and Akron and ultimately joined forces with the Cuyahoga Valley Association (CVA) to pursue national park status and funding.[240] Hale Farm & Village and the Western Reserve Historical Society added their support to the project in the early 1970s and their mailing list helped to fill the first tour led by CVA in 1972. The

[236] National Park Service, "Jaite Mill History."

[237] Mendinghall, "Ohio & Erie Canal National Historic Landmark Nomination Form," 2.

[238] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 40.

[239] Cockrell, *Administrative History*, 33.

[240] Cockrell, *Administrative History*, 34.

volunteer-run tours in Cuyahoga Valley were an important outreach tool in the group's efforts to gain national park status.

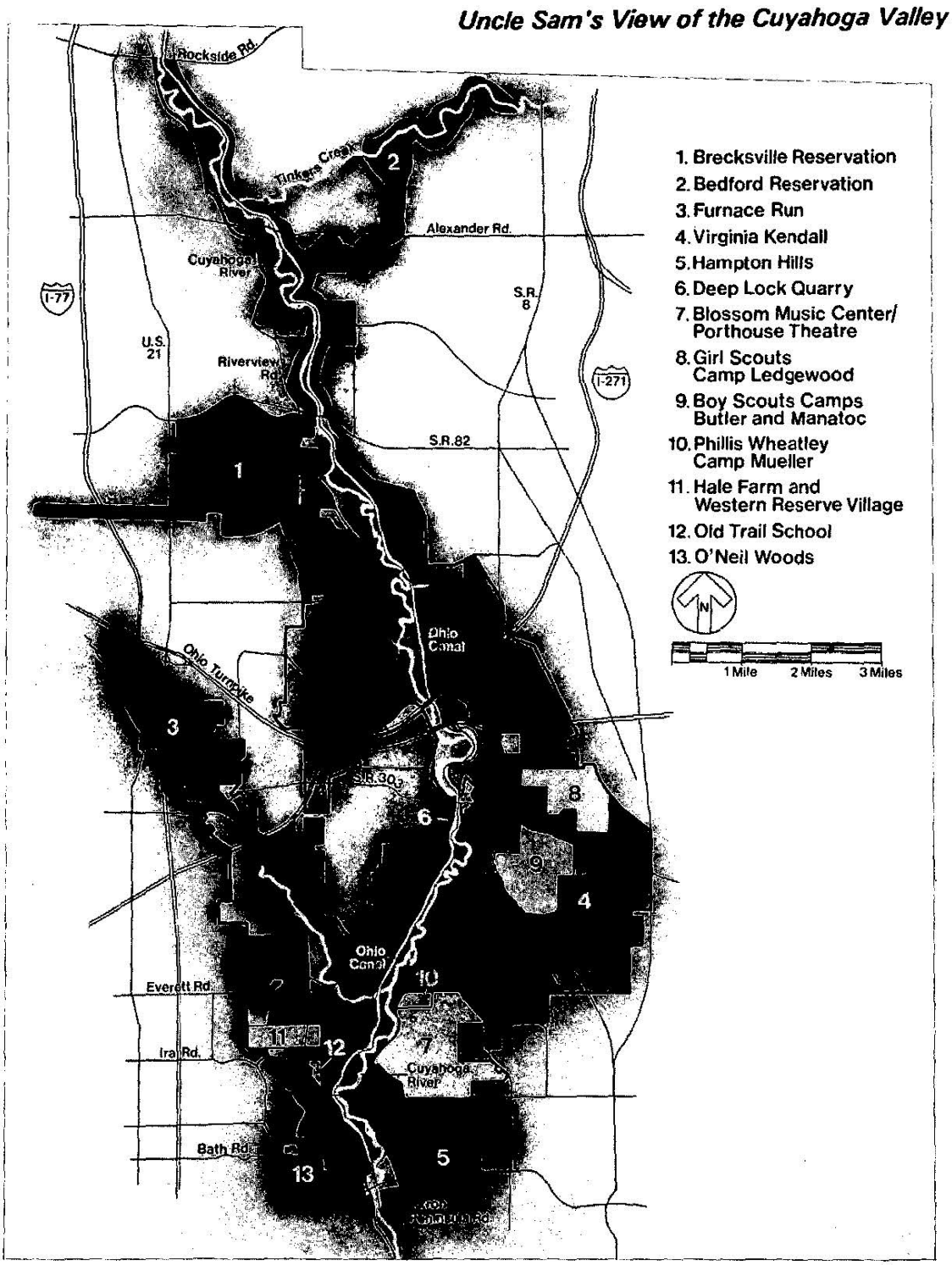


Figure 2-66: Proposed boundary map for Cuyahoga Valley Park, ca. 1973 (Cockrell, *Administrative History*, 111).

Chronology

1930 By 1930, the Cleveland Metropolitan Parks District had acquired a total of 9000 acres, which included the Rocky River, Huntington, Big Creek, Hinckley, Brecksville, Bedford, South Chagrin, North Chagrin, and Euclid Creek Reservations.[241]

1930s Civilian Conservation Corps (CCC) camps were created at Brecksville and Euclid Creek via Metropolitan Park District. Works Progress Administration (WPA) workers built fords, bridges, roads, and picnic shelters.[242]

Locks 24 and 25 were partially demolished when Riverview Road was widened in the 1930s and the canal filled in by the WPA.[243]

1931 Most of Lock 36 was filled in during construction of Route 82 High-Level Bridge.[244]

Moody and Thomas Mill burns down in Peninsula.

1932 State Highway 303 constructed through Peninsula by this date.[245]



Figure 2-67: State of Ohio State Highway System, 1932. The approximate location where 303 crosses the canal corridor is circled in blue (Ohio Department of Highways).

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[241] Cleveland Metroparks, "History," accessed June 2021, https://www.clevelandmetroparks.com/about/cleveland-metroparks-organization/history.

[242] Cleveland Metroparks, "History," accessed June 2021, https://www.clevelandmetroparks.com/about/cleveland-metroparks-organization/history.

[243] Wayside, Towpath Trail, Cuyahoga Valley National Park.

[244] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 262.

[245] Ohio Department of Highways, *Map of Ohio Showing State Highway System*, Columbus, Ohio: 1932.

1934 Lock 28 was acquired by Summit County Metropolitan Park District along with adjacent 41-acre quarry site.[246]

1940 Robert Border formed the Cuyahoga Valley Association (CVA), the first preservation group of its kind in the area. It operated for a year.[247] A primary focus of the CVA was the elimination of river pollution.[248] The group also advocated for general development planning, soil protection, wildlife and fish conservation, connection of Akron and Cleveland Park systems, and preservation of historic sites.[249]

1940s American Steel and Wire undertook a major rehabilitation of Tinkers Creek Aqueduct.[250]

1949 Pinery Feeder intake gates constructed.[251]

1951 Lake Erie Watershed Conservation Foundation (LEWCF) founded to improve water quality in the Lake Erie basin. The Cuyahoga River was a priority as wastewater from communities and industries along the river contributed to heavy pollution.[252]

1951 Brecksville Diversion Dam constructed, submerging the earlier Pinery Dam structure.[253]

1953 Tinkers Creek Road Bridge built on cut stone abutments of earlier structure.[254]

1956 Clara Belle Ritchie, Jonathan Hale's great granddaughter, bequeathed the 176-acre Hale Farm & Village to the Western Reserve Historical Society to depict life in Cuyahoga Valley pre-1850.[255]

1960s American Steel and Wire undertook another major rehabilitation of Tinkers Creek Aqueduct. Interstates 80 and 271 were constructed across the Cuyahoga Valley near Peninsula.[256]

1962 Passenger service on the Valley Railway (owned by B&O) ceased.[257]

The Peninsula Valley Heritage Association (PVHA) formed to protect the historic character of Peninsula and the surrounding landscape.[258]

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[246] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 188.

[247] Cockrell, *Administrative History,* 35.

[248] Harold Atkinson, Landscape Architect, letter to A. H. Alexander, May 9, 1940, on file at Cuyahoga Valley National Park.

[249] Cuyahoga Valley Association, "Protect Your Property" flyer, undated, on file at Cuyahoga Valley National Park.

[250] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 88.

[251] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 448.

[252] Cockrell, *Administrative History,* 31.

[253] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 448.

[254] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 115.

[255] Cockrell, *Administrative History*, 22.

[256] Cockrell, *Administrative History*, 26.

[257] Cockrell, *Administrative History*, 121.

[258] Cockrell, *Administrative History*, 500

In April, a delegation of local activists from Hudson and Peninsula went to Washington to meet with the Department of the Interior and the National Trust. The delegation lobbied for the establishment of what became the Hudson and the Peninsula National Historic Districts.[259]

1966 A 1.5-mile portion of the watered canal and associated structures was listed as a National Historic Landmark. This is the only NHL in the Recreation Area.[260]

1968 First park plan released for Cuyahoga Valley in conjunction with Ohio Department of Natural Resources (ODNR), George Watkins (LEWCF), and Tri-County Chairman John Sieberling.[261]

1969 A National Park Service/Bureau of Outdoor Recreation study determined that the Cuyahoga Valley did not meet all of the primary criteria for a national recreation area.[262]

1970 A March 13 meeting between AMPD, CMPD, and other groups resulted in an agreement to preserve the valley as parkland.[263]

1970s



Figure 2-68: Topsoil was extensively stripped between the towpath and Cuyahoga River south of Station Road Bridge, facing south, ca. 1970s (CVNP).

[259] Summary of notes for recognition of Peninsula, Ohio as a National Historic Site, on file at Cuyahoga Valley National Park; and "U.S. Designation Sought: Hudson and Peninsula to be historic sites? Delegation Goes to Washington," April 14, 1962, on file at Cuyahoga Valley National Park.

[260] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 34.

[261] Cockrell, *Administrative History*, 31.

[262] Cockrell, *Administrative History*, 501.

[263] Cockrell, *Administrative History*, 501.

1971 The Cuyahoga Valley Association officially formed from the Peninsula Valley Heritage Association, joined by members of the Cuyahoga Valley Committee.[264] Ohio Congressman John F. Seiberling introduced a bill to create the Ohio Canal and Cuyahoga Valley National Historical Park and Recreation Area.[265]

1972 American Steele and Wire replaced Lock 39 gates and repaired spalled concrete.[266]

1973 Congressman Seiberling introduced a revised national park bill.[267]

Protection Efforts, 1974–Present

Canal corridor landscape changes from 1974 to 2021 are illustrated on drawing HP-4 (see page 2.87).

In late 1973, the Cuyahoga Valley Park Foundation (CVPF) was established to consolidate efforts to gain national park status for the proposed Cuyahoga Valley Park. Harvey Swack, a long-time supporter of the cause, was hired as the foundation's director. The CVPF gained the support of 50 affiliate organizations, over 4,000 petition signatures, and sent 33 volunteers to Washington, DC, to speak with legislators in the first quarter of 1974.[268] On December 28, 1974, President Gerald Ford signed P.L. 93-555, which formally established Cuyahoga Valley National Recreation Area (CVNRA) as a unit of the National Park Service.[269]

That same year, the Peninsula Village Historic District was added to the National Register, protecting the Gothic Revival Bronson Memorial Church, Bronson House, Wood's Store, Conger House, GAR Hall, Grange Hall, and Village Hall. It also protected parts of the Ohio & Erie Canal and some quarries.[270] Additional National Register nominations within the park during this period include:

- Wilson Feed Mill (1979)[271]
- Valley Railway Historic District (1985)[272]
- Tinkers Creek Aqueduct (1979)[273]
- Station Road Bridge (1979)[274]
- Lock Tender's House and Inn (Canal Exploration Center) (1979)[275]

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[264] Cockrell, *Administrative History*, 27.

[265] Cockrell, *Administrative History*, 501.

[266] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 290.

[267] Cockrell, *Administrative History*, 501.

[268] Cockrell, *Administrative History*, 40.

[269] Cockrell, *Administrative History*, 127.

[270] Cockrell, *Administrative History*, 42.

[271] National Register of Historic Places, Wilson Feed Mill, Valley View, Cuyahoga County, Ohio, National Register #79000298.

[272] National Register of Historic Places, Valley Railway Historic District, Cuyahoga and Summit Counties, Ohio, National Register #85001123.

[273] National Register of Historic Places, Tinkers Creek Aqueduct, Valley View, Cuyahoga County, Ohio, National Register #79000296.

[274] National Register of Historic Place, Station Road Bridge, Brecksville, Cuyahoga County, Ohio, National Register #79000312.

[275] National Register of Historic Places, Lock Tender's House and Inn, Valley View, Cuyahoga County, Ohio, National Register #79000293.

- Lock 26 “Pancake Lock” (1979)[276]
- Lock 27 “Johnny Cake Lock” (1979)[277]
- Lock 28 “Deep Lock” (1979)[278]
- Lock 29 “Peninsula Lock” and Aqueduct (1979)[279]
- Lock 30 and Feeder Dam (1979)[280]
- Lock 31 “Lonesome Lock” (1979)[281]
- Lock 32 (1979)[282]
- Lock 33 “Lost Lock” (1979)[283]
- Lock 34 “Red Lock” (1979)[284]
- Lock 35 (1979)[285]
- Lock 37 “14 Mile Lock” and Spillway (1979)[286]
- Lock 38 “12 Mile Lock” and Spillway (1979)[287]
- Lock 39 “11 Mile Lock” and Spillway (1979)[288]
- Boston Mills Historic District (1992) [289]
- Botzum Farm (1999)[290]
- Brecksville-Northfield High Level Bridge (1986)[291]

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[276] National Register of Historic Places, Lock 26 “Pancake Lock,” Ira, Summit County, Ohio, National Register #79000302.

[277] National Register of Historic Places, Lock 27 “Johnny Cake Lock,” Everett, Summit County, Ohio, National Register #79000303.

[278] National Register of Historic Places, Lock 28 “Deep Lock,” Peninsula, Summit County, Ohio, National Register #79000304.

[279] National Register of Historic Places, Lock 29,”Peninsula Lock” and Aqueduct, Peninsula, Summit County, Ohio, National Register #79000305.

[280] National Register of Historic Places, Lock 30, Peninsula, Summit County, Ohio, National Register #79000306

[281] National Register of Historic Places, Lock 31 “Lonesome Lock,” Boston Township, Summit County, Ohio, National Register #79000307

[282] National Register of Historic Places, Lock 32, Boston, Summit County, Ohio, National Register #79000308

[283] National Register of Historic Places, Lock 33 “Lost Lock,” Boston Township, Summit County, Ohio, National Register #79000309

[284] National Register of Historic Places, Lock 34 “Red Lock,” Sagamore Hills Township, Summit County, Ohio, National Register #79000310

[285] National Register of Historic Places, Lock 35, Sagamore Hills Township, Summit County, Ohio, National Register #79000311

[286] National Register of Historic Places, Lock 37 “14 Mile Lock” and Spillway, Valley View, Cuyahoga County, Ohio, National Register #79000290

[287] National Register of Historic Places, Lock 38 “12 Mile Lock” and Spillway, Valley View, Cuyahoga County, Ohio, National Register #79000291

[288] National Register of Historic Places, Lock 39 “11 Mile Lock” and Spillway, Valley View, Cuyahoga County, Ohio, National Register #79000292

[289] National Register of Historic Places, Boston Mills Historic District, Boston Township, Summit County, Ohio, National Register #92001490

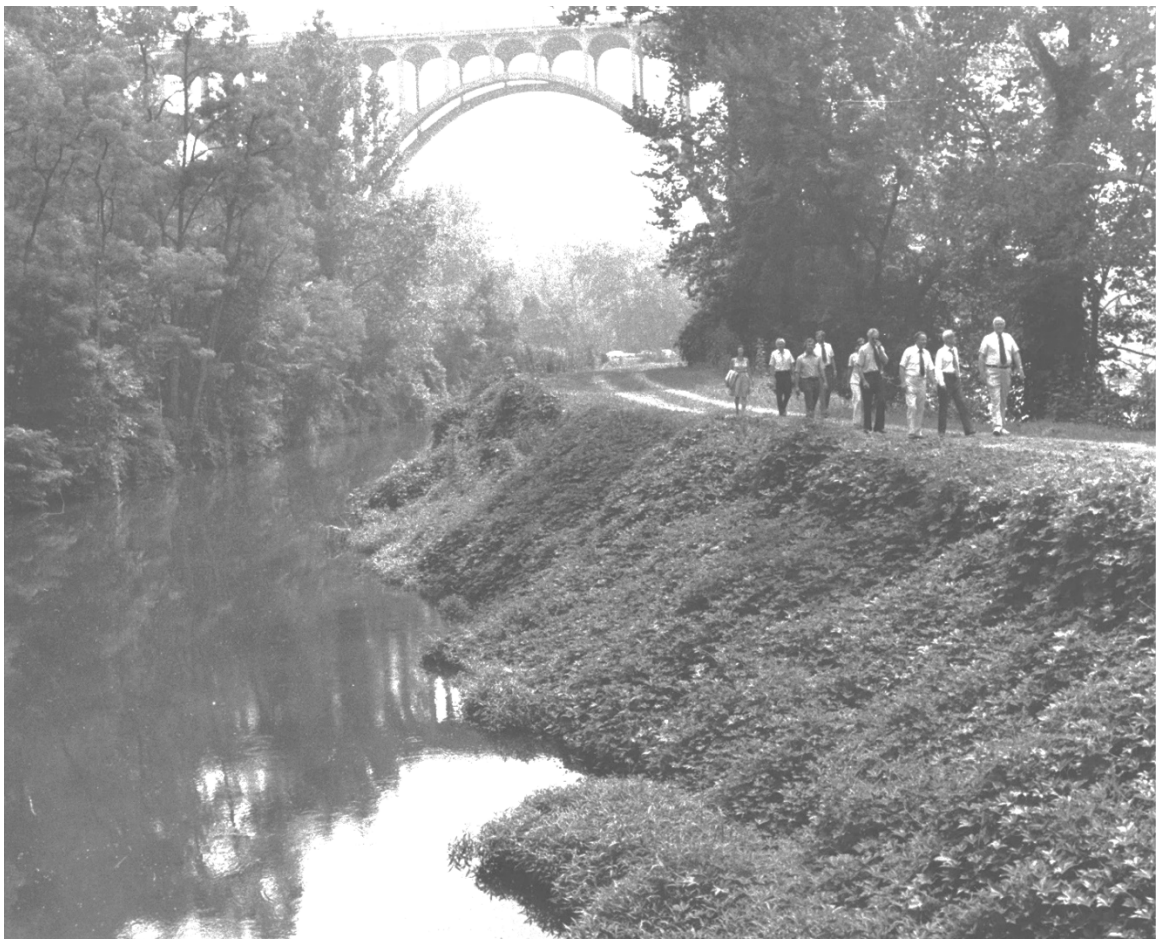
[290] National Register of Historic Places, Botzum Farm, Cuyahoga Falls, Summit County, Ohio, National Register #9900127

[291] National Register of Historic Places, Brecksville-Northfield High Level Bridge, Sagamore Hills Township, Cuyahoga and Summit Counties, Ohio, National Register #86000078

- Jim Brown Tavern (1979)[292]
- Everett Historic District (1993)
- Furnace Run Aqueduct (1979)
- Stumpy Basin (1979)[293]

Acquisition of property associated with the Ohio & Erie Canal launched with a 1975 study led by the NPS Denver Service Center. The team surveyed the canal from Cleveland to Portsmouth and concluded that the limited remains of the canal did not satisfy NPS national significance criteria for historic resources. However, they recommended that the Valley View National Historic Landmark Boundary (Lock Nos. 39 through 37) be extended three miles south through Pinery Narrows, where the canal flowed into the Cuyahoga River.[294]

With the establishment of CVNRA, many hoped to see the northern watered portion of the canal restored, with canal boat rides for park visitors. In July 1975, Cleveland Metropolitan Park District and the U.S. Steel Corporation dedicated a hiking trail along the towpath from Route 82 (Lock 36) north to Valley View (see Figure 2-69). The existing trail—and the rest of the towpath through CVNRA—was designated a national recreation trail on June 29, 1978.[295]



[292] National Register of Historic Places, Jim Brown Tavern, Boston Township, Summit County, Ohio, National Register #79000300

[293] National Register of Historic Places, Stumpy Basin, Boston Township, Summit County, Ohio, National Register #79000313

[294] Cockrell, *Administrative History*, 131.

[295] Cockrell, *Administrative History*, 131.

Figure 2-69: Portion of 2.5-mile Towpath Trail at the Brecksville Reservation of Cleveland Metroparks (now Station Road Bridge area), July 1975 (*Cleveland Plain Dealer*).

Although existing condition documentation, stabilization recommendations, and cost estimates for the northern six miles of the study area were initiated in 1978, acquisition of the canal property was complicated by U.S. Steel's existing water lease as well as the Ohio State Canal Lands Authority Act of 1959, which only recognized sale, and not donation, of the canal properties as the sole means for disposition. The state would not support transfer to the property unless the company's water rights were preserved. In 1984, U.S. Steel sold its Cuyahoga Works plant and associated water rights to American Steel and Wire, a corporation that did not oppose transfer of canal lands to NPS. By 1986, NPS secured an agreement from the State of Ohio for a 15-year easement on all unassigned canal lands, which permitted development of a multi-use trail along the towpath. Finally, in January 1989, the canal lands deed was presented to NPS at the dedication ceremony for the Lock Tender's House Canal Visitor Center.[296]

The 1980s saw a flurry of park-related development projects. Day use areas, parking, ecosystem restoration, trail development, and visitor services infrastructure occurred throughout this decade. Historic buildings were rehabilitated to serve park roles, including structures at Everett Village; others, such as, the Everett Covered Bridge, were restored to contribute to the park's historic character. In 1985–1986, the Lock Tender's House was retrofitted to serve as the canal museum and visitor center (now Canal Exploration Center) (See Figure 2-71).[297] Adaptive reuse work continued into 1987 and 1988.

Planning for the Ohio & Erie Canal Towpath Trail began in the 1980s and was completed in 1990 when the National Park Service, the State Historic Preservation Office, the Advisory Council on Historic Preservation, and the Akron Metropolitan Park District came to an agreement on how to address the protection of cultural resources during the construction effort.[298] The development of the Towpath Trail was the most ambitious development undertaken by the park at that time. Starting in 1987, funds from the National Recreation Area were allotted for planning and restoration of the trail. Due to the extensive natural and cultural history present in the valley, archeological investigations were included as a part of the planning process agreement. The Midwest Archeological Center conducted archeological studies along the canal corridor between 1987 and 1990, leading to the discovery of three prehistoric and eleven historic archeological sites.[299] In 1990 a groundbreaking ceremony celebrated the beginning of the three-year restoration and development of the multi-purpose trail and additional funds were allocated to continue the trail's engineering, design, and construction. In 1992, Station Road Bridge, a critical trail link, was rehabilitated and construction continued, including wayside exhibits.[300] The Towpath Trail formally opened on October 15, 1993, and the occasion was marked by the "Towpath T's: Three Days and Ten Ways to Enjoy the Newly Restored Ohio & Erie Canal Towpath Trail," a celebration that included numerous activities and programming for visitors of all ages.[301]

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[296] Cockrell, *Administrative History*, 132-133.

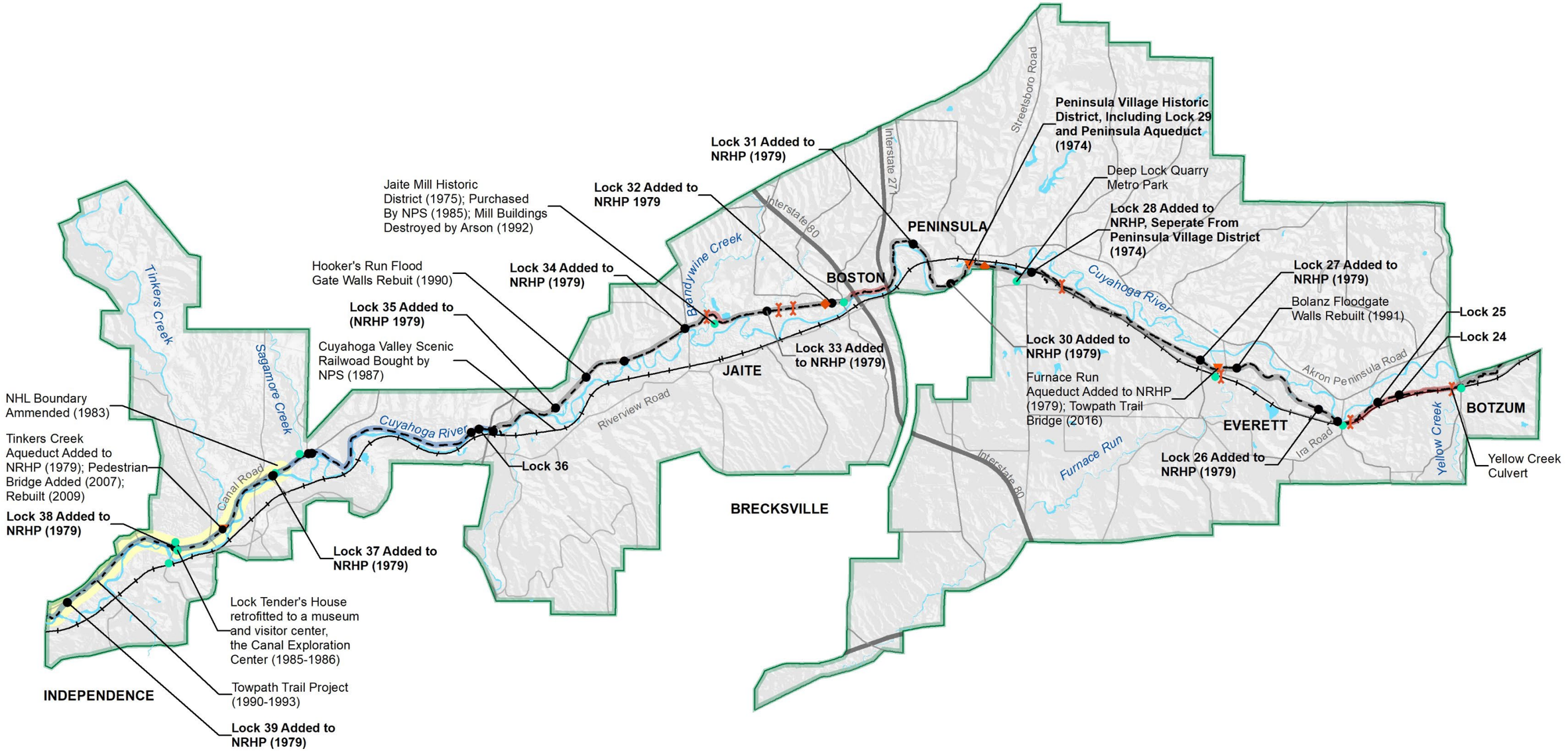
[297] Cockrell, *Administrative History,* 267.

[298] Cockrell, *Administrative History,* 265.

[299] Vergil E. Noble, *Final Report on a Phased Archeological Survey Along the Ohio & Erie Canal Towpath in Cuyahoga Valley NRA, Summit and Cuyahoga Counties, Ohio* (US Department of the Interior, National Park Service, 1992), i.

[300] Cockrell, *Administrative History,* 266, 270.

[301] Ohio & Erie Canal Corridor Coalition, "The Silver Ribbon," Vol. 5, No. 3, July 1993.



0 3,000 6,000 12,000 Feet

1 inch = 6,000 feet

N

Legend

- CVNP Boundary (2021)
- River/Stream (2021)
- Ohio and Erie Canal (Abandoned)
- Ohio and Erie Canal (Maintained by American Steel and Wire, 1913-1992)
- Destroyed Canal Prism Segment
- Lock, Waste Structure, or Feeder
- Aqueduct
- Culvert
- Basin
- Key buildings along canal corridor
- Cuyahoga Valley Scenic Railway
- Highways
- Roads
- Towpath Trail (1990-1993)
- Amended NHL Boundary (1983)
- BOSTON — Villages along the canal corridor

Sources

1. Park boundary data and water data from National Park Service, Cuyahoga Valley National Park
2. Road data from USGS
3. SKDG Canal Conditions spreadsheet, 2021
4. Ohio and Erie Canal Historic Structures Assessment, Herbling Associates, 2019
5. Ohio Landmark Survey, National Register of Historic Places, Mendinghall, 1983
6. Drawing by Quinn Evans, Arcmap 10.8

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Protection Efforts 1974-Present Historic Period Plan

October 2022

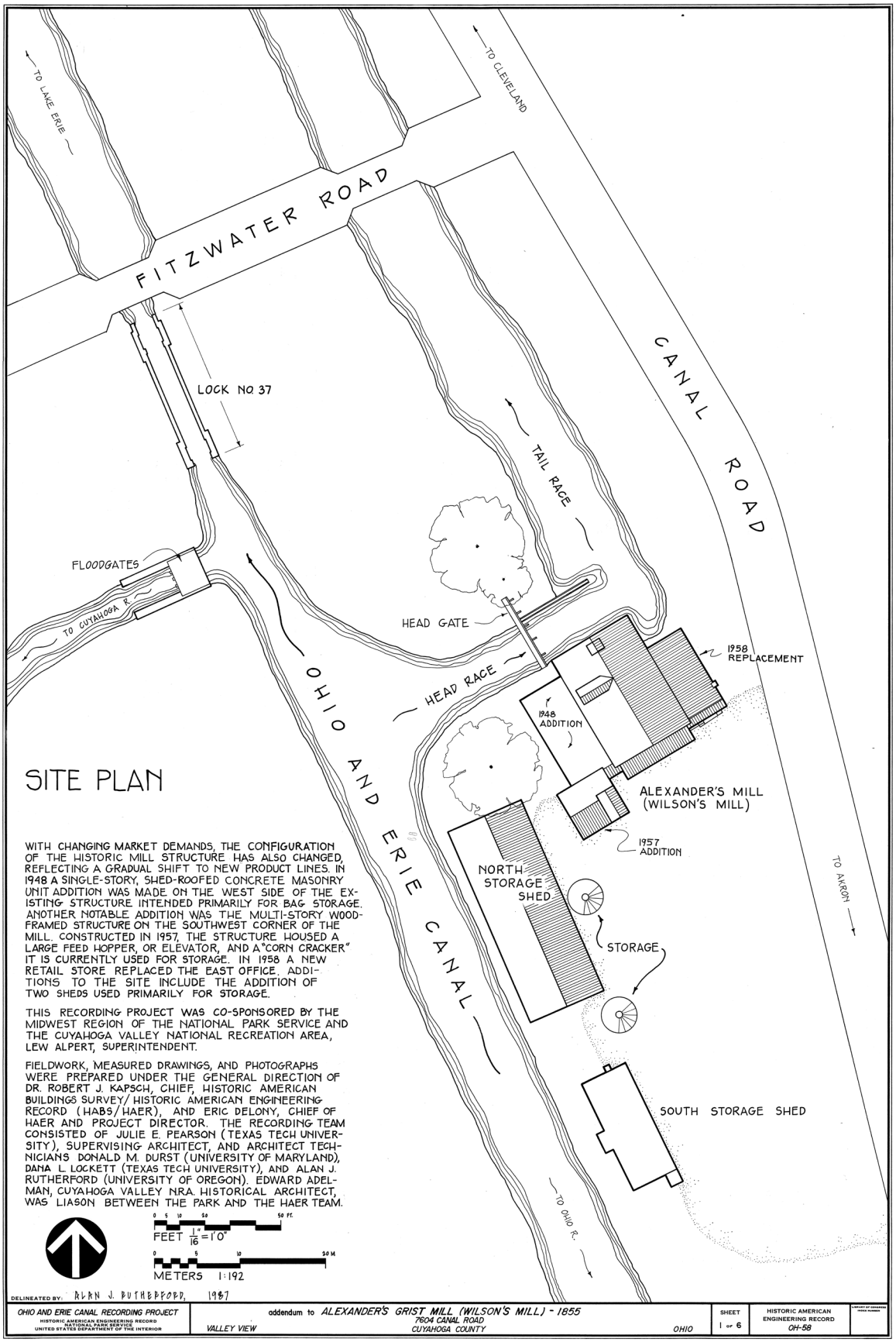


Figure 2-70: Alexander's (Wilson's) Mill, Historic American Engineering Record OH-58, 1981 (Library of Congress).



Figure 2-71: Lock Tender's House and Lock 38 before renovation, ca. 1984 (CVNP Slide 7.1.126-1).



Figure 2-72: Boston Store and M.D. Garage, ca. 1984 (CVNP Slide 7.1.430-2).



Figure 2-73: Boston Store rehabilitation, 1984 (CVNP Slide 7.1.430-1).

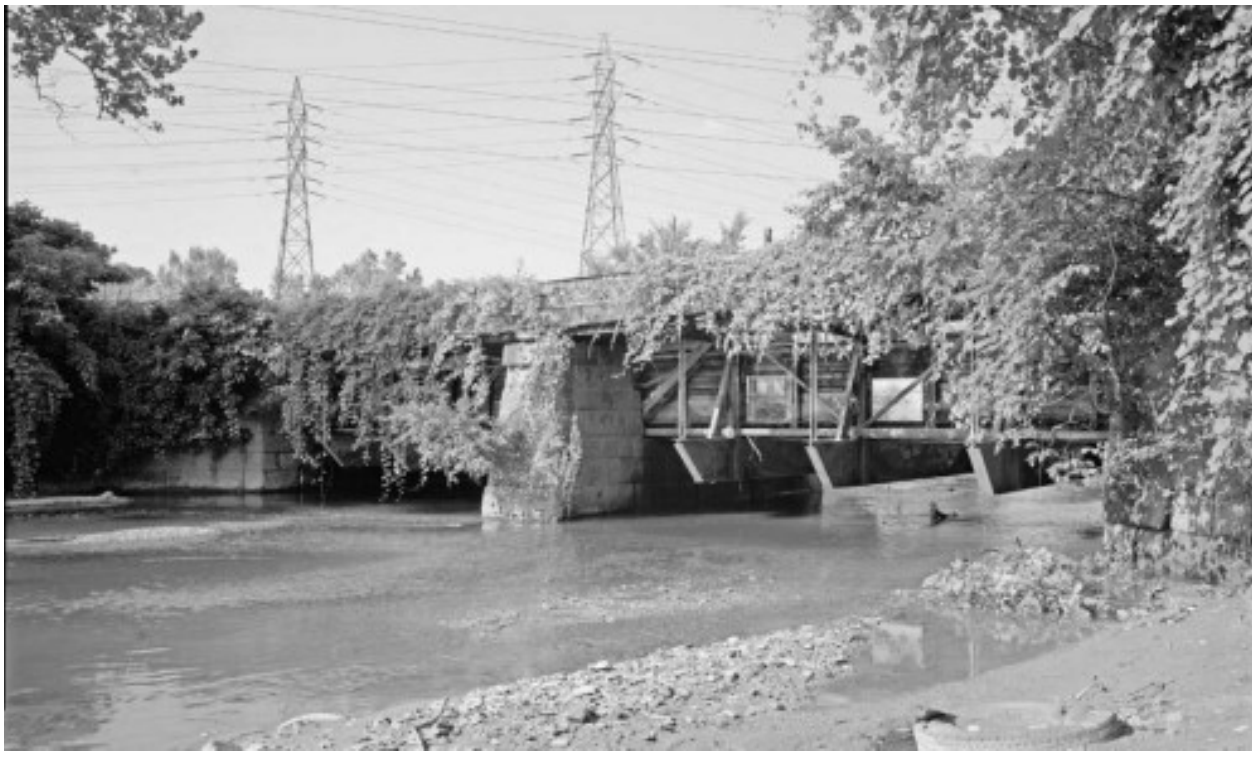


Figure 2-74: Tinkers Creek Aqueduct, Historic American Engineering Record, OH-59, 1986 (Library of Congress)



Figure 2-75: Lock 29 before Ohio & Erie Canal Towpath Trail construction, ca. 1980s (CVNP Slide 7.1.110-5).



Figure 2-76: Towpath Trail through Boston, 1992 (NRHP Nomination, Boston Mills Historic District).

The late 1980s and early 1990s also saw collaboration between the NPS and the Environmental Protection Agency (EPA) to clean up old hazardous waste sites that occurred throughout the national recreation area, including the Krejci Dump Site on Hines Hill Road.[302]

The Jaite Mill Historic District was added to the National Register of Historic Places in 1979 and in 1984 the mill ceased all operations. In 1985, the National Park Service purchased the property and converted the company town buildings to park headquarters (see Figure 2-77). In 1992, arson destroyed the Jaite Mill structures; in 2006 they were completely removed and site remediation began. The National Park Service is slowly returning this industrial site to the riparian forest ecosystem that existed before the mill was built.[303]

Riverbank stabilization projects occurred throughout the 2000s in efforts to reduce Towpath Trail erosion as well as sediment and nutrient loads traveling from the Cuyahoga River watershed to the Great Lakes. This work was undertaken in coordination with engineering and ecology firms, the US Army Corps of Engineers, and the US EPA.[304]



Figure 2-77: The Jaite Mill Historic District following extensive restoration of seven historic structures, which became a centralized park headquarters, 1983 (Cockrell, Administrative History, 205).

[302] The Krejci Dump Site, located along either side of Highway 271 outside of Brecksville, was utilized as a municipal and industrial dump between the 1940s and 1970s. It fell under National Park Service control in 1985, and NPS promptly sought funding to remediate the contaminated land. The process began in 1997 but soil excavation and active remediation did not commence until 2012, when the responsible parties removed more than 375,000 tons of contaminated soil. The $50 million cleanup was mostly completed by 2014 but the remediation was not considered complete until March of 2021, when the site reopened to park visitors. Cockrell, *Administrative History*, 270; US Department of the Interior, "The Krejci Dump Site," https://www.arcgis.com/apps/MapJournal/index.html?appid=5c25e11c013a4f6f83a5b767f432e348#:~:text=The%20Krejci%20Dump%20Site%20(Krejci,miles%20southeast%20of%20Cleveland%2C%20Ohio; and "Cuyahoga Valley National Park wraps up Krejci Dump clean up, restoration," www.cleveland.com, March 2, 2021. https://www.cleveland.com/news/2021/03/cuyahoga-valley-national-park-wraps-up-krejci-dump-clean-up-restoration.html

[303] National Park Service, "Jaite Mill History."

[304] Bergmann Associates, *Conditions Report and Alternatives Evaluation, Riverbank Stabilization at Station 515,* 2001; Bergmann Associates, *Conditions Report and Alternatives Evaluation, Riverbank Stabilization at Towpath Stations 573+00 and 940+00,* 2001; Bergmann Associates, *Conditions Report and Alternatives Evaluation, Riverbank Stabilization at Towpath Stations 1100+00 and 1107+00,* 2004; Bergmann Associates, *Conditions Report and Alternatives Evaluation, Riverbank Stabilization at Towpath Stations 875+00, 883+00,* and Valley Railway MP 61.1, 2006.



Figure 2-78: Tinkers Creek Aqueduct, 1993 (Heberling Associates, Ohio & Erie Canal History and Historic Structure Assessment, 329).

Today, Cuyahoga Valley National Park is focused on numerous projects to improve environmental quality and visitor experience within the park. The park provides an invaluable resource to residents of the surrounding communities and offers an exciting look into the history of the valley and region.

Chronology

1974	Cuyahoga Valley Park Federation (CVPF) established to pursue national park status.[305]
	American Steel and Wire ceased maintenance of the Tinker Creek Aqueduct.[306]
	June. Testimony from congressional hearings provided key arguments for the establishment of the national park. By the 1960s and early 1970s, the state and associated counties had invested much in Cuyahoga Valley land acquisition and proposed continued state and local commitments in addition to the establishment of a national recreation area to protect the valley's recreational values and preserve its heritage for future generations.[307]
	August 23. Peninsula Village Historic District listed in the National Register of Historic Places. The designation included Lock 29 and the Peninsula Aqueduct.[308] Lock 28 (Deep Lock) is listed separately.[309]
	December 27. Cuyahoga Valley National Recreation Area established.[310]
1975	Cuyahoga Valley Scenic Railway started summer season tourist trips as a partnership between Cuyahoga Valley Preservation and Scenic Railway

[305] Cockrell, *Administrative History,* 40.

[306] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 325.

[307] Cuyahoga Valley National Recreation Area Establishment Hearing, June 8, 1974, on file at University of Illinois at Urbana-Champaign, pages 23, 24, 28, and 30.

[308] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory,* 5.

[309] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory,* 34.

[310] Cockrell, *Administrative History,* 111.

	Association and Midwest Railway Historical Foundation.[311] The National Parks Service conducted a Suitability/Feasibility Study to determine the potential for the study area to be listed as a National Recreation Area. Although this study found the canal corridor to be 'lacking in integrity,' it was judged to have 'national significance.'[312]
	Jaite Mill Historic District listed in the National Register of Historic Places.[313]
1978	Cuyahoga Valley National Recreation Area boundary expanded.[314]
1979	Ohio & Erie Canal listed in National Register of Historic Places as a Thematic Resource. The nomination included 3 sections of the canal covering approximately 16 miles, excluding areas destroyed by modern development. The following structures were also included: Lock Nos. 39 through 37, Lock Nos. 35 through 26, Tinkers Creek Aqueduct, Peninsula Feeder, Peninsula Aqueduct and Furnace Run Aqueduct. Lock Nos. 36, 25 and 24 were not included in the nomination.[315]
1983	The National Historic Landmark was amended to include a 4-mile section of the canal, Lock Nos. 39, 38, and 37, Tinkers Creek Aqueduct and two buildings associated with Alexander's (Wilson's) Mill.[316]
1984	Historic Structure Reports completed for Ohio & Erie Canal and Lock Tender's House.[317]
1985	NPS purchased the Jaite Mill property and began adaptive reuse of company housing for park administration and visitor services.[318]
	US Army Corps of Engineers Cuyahoga River Restoration Study completed. The study was initiated by the 1970 River and Harbor Act revision and paved the way for CVNRA and CVNP-era river restoration projects.[319]
1986	HAER Survey of historic canal features related to engineering completed.[320]

[311] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 245.

[312] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 42; citing Oswick, 1993, 5.

[313] National Park Service, "Jaite Mill History."

[314] Cockrell, *Administrative History,* 120.

[315] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory,* 42; citing Oswick, 1993, 5.

[316] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory,* 40.

[317] Unrau et al., *Historic Structure Report- Ohio & Erie Canal*; and Johnson et al., *Historic Structure Report: Lock 38 and Locktender's House*.

[318] National Park Service, "Jaite Mill History."

[319] U.S. Army Corps of Engineers, *Cuyahoga River, Ohio Restoration Study*. U.S. Army Corp of Engineers, August 1986.

[320] Historic American Engineering Record, *Ohio & Erie Canal, HAER No. OH-59 (*National Park Service, Ohio & Erie Canal Recording Project, 1986).

1987	NPS bought the Cuyahoga Valley Scenic Railway for $25 million. Visitor railroad trips resumed in 1988.[321] NPS conducted an archeological survey at the Lock Tender's House (Canal Exploration Center, HS 125).
1987–1990	The Midwest Archeological Center (MWAC) conducted archeological investigations ahead of Towpath Trail construction and identified 4 precontact and 14 canal-related sites. The field investigations also confirmed a strategy for development of the trail, noting that full restoration of the historic towpath, berm, and canal prism would not be feasible and instead proposing a more limited rehabilitation and adaptive use of the towpath route.[322]
1990	The Towpath Trail project was approved as a collaborative effort between NPS, Ohio SHPO, Advisory Council on Historic Preservation, and Akron Metropolitan Park District.[323]
Early 1990s	The Towpath Trail, associated parking, and waysides were constructed.[324] Trail construction included converting an early twentieth century access bridge at Lock 34 to a pedestrian path and installing a prefabricated pedestrian bridge across the Peninsula Aqueduct abutments to carry the trail across the Cuyahoga River.[325] Station Road Bridge reconstruction was completed and the bridge was used to provide a connection from the trailhead to the Towpath Trail.[326] Lock 38 (adjacent Canal Exploration Center) was restored to its 1907 appearance, and a new footbridge was installed at the north end of the structure.[327]
1992	Jaite Mill structures were destroyed by arson. The mill buildings were subsequently removed from the Jaite Mill Historic District.[328]
1993	A draft Historic Structures Report was completed for all canal features within the park boundary but never signed. The Historic Structure Report documented vegetative growth as one of the leading threats to canal structures and recommended selective removal of invasive vegetation.[329] NPS prepared *The Route to Prosperity: The Ohio & Erie Canal Corridor Study*, which recommended the corridor's eligibility for National Heritage Corridor Status.[330]

[321] Case Western Reserve University, "Cuyahoga Valley Scenic Railroad," Encyclopedia of Cleveland History, https://case.edu/ech/articles/c/cuyahoga-valley-scenic-railroad.

[322] Noble, *Final Report on a Phased Archeological Survey along the Ohio & Erie Canal Towpath in Cuyahoga Valley NRA*, 6.

[323] Cockrell, *Administrative History*, 265.

[324] Cockrell, *Administrative History*, 265.

[325] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 86, 245.

[326] Cockrell, *Administrative History*, 270.

[327] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 59.

[328] National Park Service, "Jaite Mill History."

[329] Paulette (Oswick) Cossell, *Ohio & Erie Canal, Masonry and Concrete Structures (Draft) Historic Structure Report* (Brecksville, OH: National Park Service, Cuyahoga Valley National Recreation Area, 1993).

[330] National Park Service, *A Route to Prosperity: The Ohio & Erie Canal Corridor Study*, 1993.

1994	Lock 37's 'salvageable historic fabric' was removed and stored. In addition, the upper breast wall of the lock was raised with stop logs, raising water level between Locks 36 and 37 to more historically accurate depths.[331]
1996	Ohio & Erie Canal Corridor deemed a National Heritage Corridor.[332]
	Lock 32 repaired.[333]
2000	Cuyahoga Valley National Park established.[334]
2001	Bergmann Associates completed riverbank stabilization studies at Towpath Trail Stations 515, 573, and 940.[335]
2004	Bergmann Associates completed riverbank stabilization studies at Towpath Trail Stations 1100 and 1107.[336]
	The entire cultural landscape was determined eligible for listing in the National Register of Historic Places per park concurrence on eligibility signed June 24, 2004 and SHPO concurrence on landscape eligibility signed August 31, 2004.
2006	Jaite Mill site remediation began.[337]
	Bergmann Associates completed riverbank stabilization studies at Towpath Trail Stations 875, 883, and Valley Railway MP 61.1[338]
2007	NPS constructed a pedestrian bridge utilizing the Tinker Creek Aqueduct abutments.[339]
2009	Tinkers Creek Aqueduct replaced with concrete trough at same dimension as original structure. New concrete stub abutments were added, with the original masonry abutments reassembled to appear as if supporting the new structure.[340]
	Cultural landscape National Register of Historic Places eligibility was confirmed by park superintendent approval of the updated 2009 CLI.[341]

[331] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 271; citing Assessment of Actions Having an Effect on Cultural Resources, Lock 37 (HS-121)-Interim Water Control, December 8, 1994, Cuyahoga Valley National Park, Resource Management Division files.

[332] Tamburro, *Cultural Landscapes Inventory*, 42.

[333] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 69.

[334] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 52.

[335] Bergmann Associates, *Conditions Report and Alternatives Evaluation, Riverbank Stabilization at Station 515,* 2001; and Bergmann Associates, *Conditions Report and Alternatives Evaluation, Riverbank Stabilization at Towpath Stations 573+00 and 940+00,* 2001.

[336] Bergmann Associates, *Conditions Report and Alternatives Evaluation, Riverbank Stabilization at Towpath Stations 1100+00 and 1107+00,* 2004.

[337] National Park Service, "Jaite Mill History."

[338] Bergmann Associates, *Conditions Report and Alternatives Evaluation, Riverbank Stabilization at Towpath Stations 875+00, 883+00,* and Valley Railway MP 61.1, 2006.

[339] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 325.

[340] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 245.

[341] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory.*

2012	Cuyahoga Valley National Park Trail Management Plan completed.[342]
2016	Breach of towpath berm near Lock 37 floodgate resulted in dredging and temporary lowering of stop logs to protect the lock.[343] Cuyahoga Valley National Park Sustainable Trail Guidelines completed.
2017	NPS completed Environmental Assessment of Canal Diversion Dam Project to remove Brecksville Dam and improve water quality and ecosystem function.[344]
2018	NPS replaced the Towpath Trail bridge over Furnace Run. Views of the aqueduct abutment substructure from this bridge offer insight into construction details of the historic feature.[345]
June 2019	*Ohio & Erie Canal History and Historic Structure Assessment* completed by Heberling Associates. [346]

[342] National Park Service, *Final Trail Management Plan and Environmental Impact Statement* (National Park Service, Cuyahoga Valley National Park, Ohio, 2012).

[343] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 75.

[344] Ohio Environmental Protection Agency, National Park Service, Ohio Department of Natural Resources, and U.S. Army Corps of Engineers, *Cuyahoga River Ecosystem Restoration Canal Diversion Dam Project Environmental Assessment*, 2017.

[345] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment,* 309.

[346] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment.*



03 Existing Condition & Landscape Analysis



Beaver Marsh boardwalk (QE, 2021).

03 Existing Condition and Landscape Analysis

Introduction

This chapter documents the existing condition of the Ohio & Erie Canal study area and provides an analysis of integrity for the cultural landscape. The resources within the study area, which is comprised of a 70-foot wide corridor along the canal prism capturing all structures associated with canal use (refer to *Chapter 1*), are documented through a process that adheres to the *Secretary of the Interior's Standards for the Evaluation of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*.[1] Descriptions, condition assessment, and analysis of canal structures build on the findings of the 2019 *Ohio & Erie Canal History and Historic Structure Assessment*, with a focus on the relationship of canal structures to the entire cultural landscape and the effect of structures on hydrological conditions.

The chapter begins with a description of existing condition and comparative landscape analysis for the overall study area organized by landscape characteristics. To support understanding of existing condition within the overall study area, this is followed by a description of seven segments along the length of the 22-mile-long study area. The chapter concludes with existing condition and landscape evaluation for three detail areas: Boston, Peninsula, and the Canal Exploration Center.

The analysis identifies those qualities and features that retain integrity and contribute to the significance of the landscape (refer to *Chapter 2*). Evaluation of the physical integrity of the cultural landscape is based on a comparison of current conditions to those significant conditions present during the period of significance, 1825–1913.

Segments and Detail Areas

Segments and detail areas are illustrated on EC-1.

1. **Segment 1** is at the southern end of the study area, from the south boundary of Cuyahoga Valley National Park near Botzum Trailhead (Sta 1480) to Ira Road (Sta 1387). Within this 1.8-mile segment, visitors experience remnants of Lock Nos. 24 and 25; however, the canal prism is no longer visible, and the Ohio & Erie Canal Towpath Trail does not follow the historic route of the towpath.

2. **Segment 2** extends from Ira Road (Sta 1387) to Lock 29 (Sta 1123) at Peninsula. Within this 4.1-mile segment of the study area, the prism, towpath, and associated structures are situated between the Cuyahoga River to the east and the Cuyahoga Valley Scenic Railroad to the west. It also includes a railway bridge near Lock 28 and the Beaver Marsh.

3. **Segment 3** extends from Lock 29 at Peninsula (Sta 1123) to I-80 (Sta 1034). Segment 3 encompasses 1.7 miles of the Towpath Trail, where it closely parallels the Cuyahoga River and includes a Valley Railroad bridge and Stumpy Basin.

[1] Charles Birnbaum and Christine Capella Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Washington, DC: US Department of the Interior, National Park Service, 1996).

4. **Segment 4** extends from Interstate 80 (I-80) (Sta 1034) to Boston (Lock 32) (Sta 995). This 0.5-mile segment of the study area is heavily impacted by bridges associated with I-271 and I-80 (Ohio Turnpike), which pass over the canal corridor just south of Boston.

5. **Segment 5** includes the unwatered canal between Boston (Lock 32) (Sta 995) and Station Road Bridge (Sta 765). Within this 4.6-mile segment of the study area, the canal prism is on the east side of the Cuyahoga River, accompanied by a low floodplain of irregular width between the berm and the river. In addition to the canal, Segment 5 also includes the site of Jaite Mill, constructed in 1905 as a paper mill and later sold to the National Container Corporation.

6. **Segment 6** extends from Station Road Bridge (Sta 765) to Sagamore Creek (Sta 635). This 2.4-mile segment of the study area is one of the best-preserved sections of the canal corridor, where visitors can clearly understand the canal's historic appearance and function. Within this segment, the Towpath Trail and canal prism pass through a narrow, wooded valley known as the "Pinery Narrows."

7. **Segment 7** is located at the northern end of the study area, from Sagamore Creek (Sta 635) to Rockside Road (Sta 442). This well-preserved 4-mile segment corresponds to the existing National Historic Landmark Boundary, which acknowledges the exceptional integrity of this portion of the canal corridor.

8. The **Canal Exploration Center** detail area includes the Canal Exploration Center and associated parking lot, Lock 38, the Lock 38 Spillway, the adjacent portion of the canal prism, and the riverbank to the west of the visitor center.

9. The **Boston Detail Area** includes the Boston Store, Lock 32 and Lock 32 Spillway, Boston Basin, the overflow parking area and adjacent drainage features, and the riverbank between I-271 and the proposed river access site on the north side of Boston Mills Road.

10. The **Peninsula Detail Area** includes Lock 29, the Lock 29 trailhead, the Peninsula Aqueduct, and the portion of Stanford Road and the Cuyahoga Valley Scenic Railroad between Main Street and the trailhead. The boundary extends south to the 303 (Main Street) bridge.

Landscape Characteristics

Within each section, existing condition documentation and analysis are organized by landscape characteristic. Landscape characteristics are the tangible and intangible aspects of a landscape that collectively create historic character and aid in understanding cultural importance. The landscape characteristics used to describe the Ohio & Erie Canal cultural landscape are:

Spatial Organization is the arrangement of elements that define and create space through the ground, vertical, and overhead planes, including the arrangement of topography, buildings, and vegetation.

Land Use is tied to the ways that people use the landscape and is often related to patterns of spatial organization.

Circulation consists of the features and materials that allow for systems of movement throughout the study area. Within this CLR, circulation focuses on condition and accessibility along the Towpath Trail. Connections to adjacent trails, trailheads, public roads, and clusters of development are also addressed.

Natural Systems are those natural aspects that have influenced the development and physical form of the study area, including geology, hydrology, soils, waterbodies, climate, and ecological

communities. Within the study area, natural systems are closely related to *Topography,* the three-dimensional configuration of the landscape surface.

Vegetation is the indigenous or introduced trees, shrubs, vines, ground covers, herbaceous plants, and lawns within the study area.

Views are groupings of features that create or allow a range of vision. Views can be natural or designed and controlled.

Buildings and Structures are three-dimensional built features, including the canal structures, culverts, and any buildings located within the study area. These features are critical infrastructure within the canal corridor, create mass and scale, and contribute to character through their style and appearance.

Small-Scale Features are human-scaled landscape elements that provide specific functions within the study area, such as fences, signs, and furnishings.

Archeological Sites are locations containing surface and subsurface remnants related to previous land use.

Condition

The existing condition of the landscape is evaluated using the following criteria:

Good: There are no major problems and the features do not require immediate intervention. Only minor or routine maintenance is needed.

Fair: Some deterioration, decline, or damage is noticeable; the feature may require immediate intervention. If deferred, the feature will likely require attention within the next five years.

Poor: Deterioration, decline, or damage is serious; the feature may present a hazardous condition. Extensive and immediate attention is required.

In general, the overall condition of the study area landscape is good. Discrete areas are in fair to poor condition. Descriptions of the segments document conditions observed during field investigations in 2021.

Summary of Integrity

Integrity is the ability of the cultural landscape to convey its significance, or how well the physical features of the landscape relate to its historic significance. To be listed in the National Register of Historic Places, a property must be shown to have significance under at least one of the four criteria and must also retain a degree of its historic integrity. The National Register of Historic Places defines seven aspects or qualities that make up integrity: location, design, setting, materials, workmanship, feeling, and association.[2]

Viewed as a holistic unit, the study area retains integrity of location, design, association, setting, materials, and workmanship and is representative of the Ohio & Erie Canal's historic significance (refer to *Chapter 2*). The majority of the canal prism and towpath berm are intact, and the overall resource continues to convey its historic significance. The limited instances where parts of the canal-associated features are obscured or deteriorating do not substantially impact the historic character of the cultural landscape.

[2] National Park Service, *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Washington, DC: US Department of the Interior, National Park Service, 1995), 44.

Location

Location is the place where the cultural landscape was constructed or the landscape where the historic event occurred. The cultural landscape retains integrity of location, as the majority of components of the canal corridor, including the canal prism, towpath route, and canal structures, continue to occupy their historic locations.

Design

Design is the combination of elements that create the form, plan, space, structure, and style of a property. The canal was originally designed as a water-filled prism measuring a minimum of 26 feet wide at the bottom and 45 feet wide at the water line, with a 10-foot-wide berm on the river side of the prism. The towpath followed along the top of the berm and was used to pull boats through the canal with a team of horses and mules. Portions of the prism were widened to provide basins, where boats passed, turned around, or were stored in the winter. Locks in line with the canal prism allowed for canal boats to change elevation, while aqueducts carried the canal prism over large streams. Culverts and other waste and water control structures were located adjacent to or beneath the prism and towpath. Canal features remain intact and retain their historic relationships for the vast majority of the cultural landscape. Therefore, integrity of design is retained. In limited locations, erosion, siltation, or vegetation obscures the original elements of the canal. In particular, integrity of design is diminished in Segments 1 and 4, where the canal prism and towpath berm have been destroyed by modern development.

Association

Association is the direct link between an important historic event or person and a cultural landscape. The cultural landscape retains a strong association with the Ohio & Erie Canal as the places within the canal's original 308-mile corridor where both the individual canal features and relationships between the features that assist in understanding its functionality are most consistently preserved.

Setting

Setting is the physical environment of the landscape. Overall, setting is retained throughout the cultural landscape. The Ohio & Erie Canal was originally constructed in a remote rural landscape characterized by small subsistence farms with limited overland connections to regional markets. Although the canal and later the railroad drove economic growth and development, particularly in nearby Cleveland and Akron, the steep walls and unstable soils of the Cuyahoga Valley and limited access to clean well water delayed extensive industrial, commercial, and residential development adjacent to the study area. After the end of the period of significance, setting was further protected by preservation efforts and park land acquisition throughout the valley. Today, the northern six miles of the corridor are particularly representative of the historic rural setting of the Ohio & Erie Canal. There are limited locations along the canal corridor where the landscape no longer conveys its historic setting, particularly where I-80 and I-271 cut through the study area between Boston and Peninsula.

Feeling

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. Feeling results from the presence of physical features that, taken together, convey the property's historic character. There are select locations within the cultural landscape where the property's connection to historic events is readily apparent. In particular, the canal's original function and its relationship to nearby roads, historic structures, the Cuyahoga River, and the Cuyahoga Valley Scenic Railroad (Valley Railroad) are readily apparent in the northern six miles of the canal corridor (Segments 6 and 7). These critical spatial and visual connections provide tangible connections to historic events that took place within the study area.

However, the feeling of being within a nineteenth-century transportation corridor is diminished within the overall study area due to changes in the landscape character that no longer support understanding of

the canal's economic function and connection to the broader valley. These include loss of water within the canal prism throughout much of its length; extensive vegetation encroachment on the prism, Towpath Trail, and the space between these features; and loss of buildings, structures, and other features that supported trade and transport along the canal.

Materials and Workmanship

Materials are the physical elements that were combined or deposited during a distinct period of time in a particular pattern or configuration to form a historic property. Materials are closely related to the aspect of *Workmanship*, the physical evidence of the craft of a particular culture or people during any given period in history.

Many of the original materials of the canal structures, including stone or concrete portions of the locks, aqueducts, culverts, waste structures, dams and feeders, bridge abutments, and historic buildings are extant within the landscape. Overall, these features also continue to convey the skill and workmanship utilized in their construction. Workmanship is somewhat diminished where canal structures have been extensively altered to support visitor use, for example at Lock Nos. 32 and 26, or where structures have severely deteriorated at Lock Nos. 24 and 25. The original soil excavated and bermed for the canal prism and towpath are also largely retained throughout the study area. Integrity of the towpath berm and prism is somewhat diminished in limited locations due to erosion and siltation, or destruction of the canal corridor due to modern road construction.

Ephemeral wood features such as wood fences and gates have deteriorated since the end of the period of significance and are no longer extant within the cultural landscape. The Towpath Trail is also stabilized with asphalt, limestone fines, or boardwalk, rather than the bare earth surface that served the canal during its use as a transportation corridor. Due to the limited nature of these changes and the substantial proportion of original materials and construction methods extant within the study area, the overall cultural landscape retains integrity of materials and workmanship.

Contributing and Non-Contributing Features

The analysis identifies contributing and non-contributing features within the Ohio & Erie Canal cultural landscape.

> *Contributing Features* are features or aspects remaining from the period of significance, 1825–1913, that relate to the significance of the cultural landscape and embody the historic character for which its significance is established.
>
> *Non-contributing features* are recent additions (constructed or emerging after 1913) that do not embody the historic character of the landscape. Examples include recent site furnishings, waysides, wayfinding signs, and successional vegetation between the Towpath Trail and the canal prism. Noncontributing features may be considered compatible when they fit within the physical context of the historic period and do not impact the historic integrity of the property. Incompatible features are those that are not harmonious with the quality of the cultural landscape and, by virtue of their existence, can lessen the historic character.
>
> *Missing* features and aspects were known to be present during the period of significance but are no longer evident within the cultural landscape.

Table 3-1, Summary of Contributing Landscape Features, contains a list of contributing and missing features and aspects in the study area organized by landscape characteristic. Known dates of construction are documented and evaluation status is noted. Buildings and structures, including individual canal features, are addressed in Table 3.2 in the Overall Study Area Buildings and Structures section of this chapter.

Table 3-1: Summary of Contributing Landscape Features			
Feature	Date	Evaluation	Comments
SPATIAL ORGANIZATION			
Overall north–south linear arrangement of canal corridor including canal prism, berm, Towpath Trail, and associated canal structures along the Cuyahoga River	1827	Contributes to the historic character of the landscape	Segment 7 lies within the NHL boundary. Integrity is diminished in Segments 1 and 4.
Relationship of canal corridor to towns along its route	1827	Contributes to the historic character of the landscape	Construction and use of the canal influenced development of towns at Boston, Peninsula, Brecksville, Independence Township, and Everett in response to growing trade opportunities and an expanding workforce. Historic features within the villages continue to maintain spatial relationships to the canal corridor.
Relationship of canal corridor to local roads	By 1856	Contributes to the historic character of the landscape	Akron-Peninsula Road, Canal Road, Streetsboro Road, Hines Hill/Boston Mill Road, and Stone Road follow historic road locations and are representative of the road networks that developed along the canal corridor in response to increased economic activity and population growth.
Relationship of canal corridor to Cuyahoga River	1827	Contributes to the historic character of the landscape	The canal corridor continues to roughly parallel the route of the Cuyahoga River, which also will supply water for the canal prism.
LAND USE			
Recreation	Ca. 1890s	Contributing	Recreational use consistent with later decades of period of significance

Transportation	**1827**	**Missing**	**Navigational use of the canal is no longer possible due to condition of prism and loss of connective features**
BUILDINGS AND STRUCTURES			
Refer to Table 3-2 for an evaluation of buildings and structures within the study area including locks, culverts, aqueducts, waste structures, dams and feeders, bridges, basins, and the canal prism.			
CIRCULATION			
Ohio & Erie Canal Towpath Trail	1827/1993	Contributes to the historic character of the landscape	Segment 7 lies within the NHL boundary. Integrity is diminished in Segments 1 and 4.
Akron-Peninsula Road	By 1856	Contributes to the historic character of the landscape	Changes to width, pavement, and traffic speed affect character in some locations.
Canal Road	By 1890s	Contributes to the historic character of the landscape	
Streetsboro Road	By 1856	Contributes to the historic character of the landscape	
Hines Hill/Boston Mills Road	By 1856	Contributes to the historic character of the landscape	
Stone Road	By 1890s	Contributes to the historic character of the landscape	
Riverview Road	By 1856	Portions contributing	Changes to alignment affect character in some locations.
Cuyahoga Valley Scenic Railroad	1880	Contributes to the historic character of the landscape	Lies within Cuyahoga Valley Scenic Railroad Historic District
NATURAL SYSTEMS AND TOPOGRAPHY			
Geology		Contributes to the historic character of the landscape	Narrow valley and floodplain shaped placement and development of Ohio & Erie Canal

Cuyahoga River and associated tributaries		Contributes to the historic character of the landscape	Determining factor in siting and function of Ohio & Erie Canal
Floodplain soils		Contributes to the historic character of the landscape	Supported agriculture adjacent to the canal corridor
Steep valley walls and associated unstable soils		Contributes to the historic character of the landscape	Discouraged development of valley slopes
Gentle slope of canal downhill to the north	1827	Contributes to the historic character of the landscape	Original to canal design sloping down to Lake Erie
Topographic relationship between canal prism, towpath berm, and Cuyahoga River	1827	Contributes to the historic character of the landscape	Original to canal design
VEGETATION			
Clear corridor between canal prism and Towpath Trail surrounded by meadow or floodplain forest	1827–1913	Contributes to the historic character of the landscape	Present in Segment 7. Missing in Segments 1-5.
Clear corridor between canal prism and Towpath Trail surrounded by floodplain or upland forest	1827–1913	Contributes to the historic character of the landscape	Present in Segment 2, Segment 3, and Segment 6 (Pinery Narrows)
Agricultural fields in Segment 2	Mid-1800s	Contributes to the historic character of the landscape	
ARCHEOLOGICAL SITES			
Sites related to Ohio & Erie Canal within study area (14)		Contributes to the historic character of the landscape	Canal corridor has potential to yield additional information related to the significance of the study area
SMALL-SCALE FEATURES			
Overhead electrical lines along Canal Road	Ca. 1890s	Contributes to the historic character of the landscape	
Fences and small-scale features serving canal navigational use		Missing	

Overall Study Area Existing Condition and Landscape Analysis

The overall study area is described here in general detail by landscape characteristic, to provide a context and baseline for understanding the whole cultural landscape. A more detailed discussion is provided for seven segments with similar character and hydrologic conditions. The overall study area is illustrated on drawing EC-1 (see page 3.11).

Stationing for Appendix A Exhibits and the following Table 3-2 reflects the stationing provided in the Cuyahoga Valley National Park GIS data. As a result, stationing of structures and other features in this report does not always match the 2019 *Historic Structures Assessment*. Feature locations were confirmed by GPS during April 2021 field investigations.

Overall Study Area Spatial Organization

The study area is a 22-mile long segment of the Ohio & Erie Canal oriented north–south within the relatively narrow floodplain of the Cuyahoga River (refer to EC-1). The canal corridor consists of the canal prism, a berm situated between the canal and the river, and remaining canal structures that facilitated the movement of water and boats through the canal; managed the movement of water between the canal, river, and other tributaries; or supported movement across the canal prism. The canal prism, Towpath Trail and berm, and other structures are defined and discussed in the Overall Study Area Circulation (see page 3.27) and Overall Study Area Buildings and Structures (page 3.17) sections of this chapter.

For most of the length of the study area (Segments 2, 3, 5, 6, and 7), the Ohio & Erie Canal Towpath Trail occupies the historic route of the canal's towpath, situated on the top of the berm. In limited locations (Segments 1 and 4), the berm and/or prism are no longer extant due to modern development or changes to the path of the Cuyahoga River, and the Ohio & Erie Canal Towpath Trail is divorced from the historic location of the canal's towpath.

Functionally, NPS divides the canal corridor into two zones. The watered section of the canal consists of the northern 6 miles of the canal within the park between Rockside Road and Station Road Bridge. Prior to 2020, this portion of the canal was watered by the Brecksville Diversion Dam and a short feeder located near the bridge, which directed water from the Cuyahoga River into the canal. The Brecksville Diversion Dam and Pinery Dam were removed in 2020. This segment will return to a "watered" condition following the anticipated installation of a pump near Station Road Bridge in 2022. The unwatered section of the canal consists of the southern 16 miles of the canal within the park. Although water will not be actively pumped into this section of the canal prism, both the canal prism and towpath berm are discernable for most of this distance. Portions of the canal prism retain water accumulated from overland stormwater runoff and tributaries of the Cuyahoga River. The watered section contains the remains of 12 canal structures such as locks, aqueducts, culverts, and waste weirs; the unwatered section contains 35 extant canal structures.

The canal corridor has important spatial relationships to other nearby circulation routes. The Cuyahoga Valley Scenic Railroad, located in the historic route of the Valley Railroad, parallels the canal corridor along its entire route through the park. Between Rockside Road and mile marker 23, the railroad crosses to the east side of the river and canal corridor, switching back to the west side just south of Lock 28. Canal Road runs along the northern end of the canal from Rockside Road to Sagamore Creek, and Riverview Road closely parallels the southern 6 miles of the Towpath Trail.

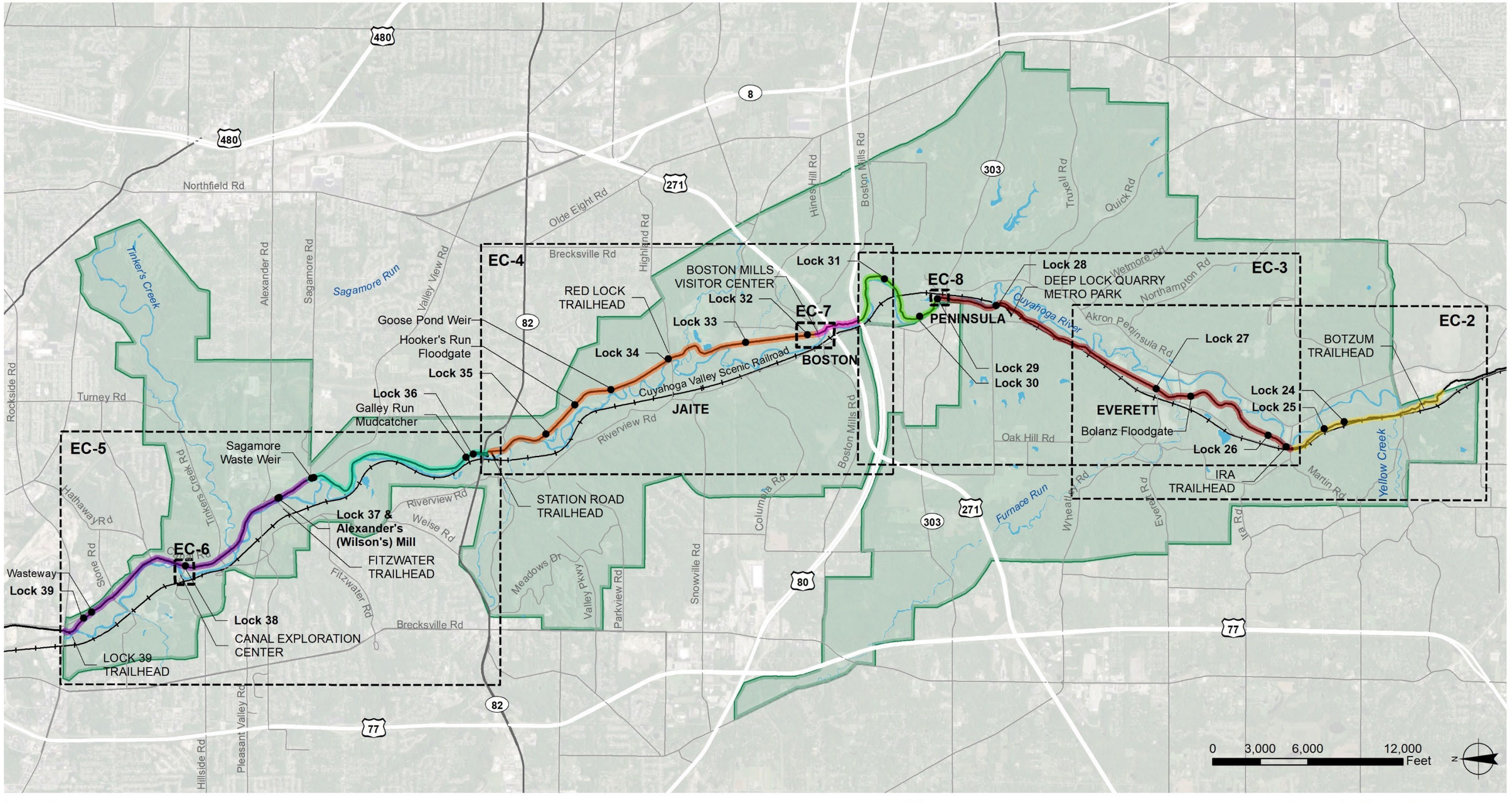
Businesses and villages developed along the canal—and later the railroad—in response to the economic opportunities and needs of the circulation corridor during the period of significance. Some of these settlements remain as clusters of development along the canal corridor, including Alexander's (Wilson's) Mill, Boston, Peninsula, Everett, and Hunt House. Several additional historic buildings, such as the Frazee House, Jim Brown House, and Gleason Farm, are visible from the trail.

Analysis and Evaluation

The Ohio & Erie Canal was designed as a linear corridor that took advantage of the topography of the Cuyahoga Valley and its proximity to the Cuyahoga River to maintain a relatively low-slope watered condition from its high point at Licking Summit to Cleveland. The major components of this corridor, including the alignment of the canal prism and its associated historic towpath and the arrangement of canal structures including locks, aqueducts, culverts, waste structures, dams and feeders, and basins, are retained within the landscape. Also retained are the canal's historic relationships to towns and circulation routes along the corridor, including the villages of Peninsula, Boston, and Everett; local roads; and the Cuyahoga Valley Scenic Railroad. These aspects and features contribute to the historic character of the study area. Although the path of the Cuyahoga River has altered in the time since the end of the period of significance, the canal corridor retains its overall relationship to the river corridor. The canal corridor remains on the east side of the river north of Peninsula and switches to the west side of the river south of Lock 29.

Non-contributing modifications to the study area's spatial organization since the end of the period of significance include alterations to the canal corridor to accommodate modern circulation routes, such as I-271 and I-80 between Boston and Peninsula, Riverview Road at the southern end of the study area, and connections to trailheads along the length of the park. Encroaching vegetation within the canal prism and between the prism and Towpath Trail also disrupts visual perception of the historic relationship of these features.

Despite these changes, the overall study area retains integrity of spatial organization, reflecting the broad-scale spatial relationships present during the period of significance from 1825 to 1913.



Legend

Boundaries

- CVNP Boundary
- Existing Condition drawing
- Detail Area drawing

Natural Systems

- River, Stream, or Pond

- Study area: Segment 1 (see EC-2)
- Study area: Segment 2 (see EC-3)
- Study area: Segment 3 (see EC-3)
- Study area: Segment 4 (see EC-4)
- Study area: Segment 5 (see EC-4)
- Study area: Segment 6 (see EC-5)
- Study area: Segment 7 (see EC-5)

Buildings and Structures

- Lock or Waste Structure

Circulation

- Ohio and Erie Canal Towpath Trail
- Local Connecting Road
- Highway
- Railroad

Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Study Area
Existing Condition

October 2022

Overall Study Area Land Use

The study area is located within the Cuyahoga Valley National Park boundary and is used primarily for recreation and interpretation. Hiking, running, and biking are popular along the Ohio & Erie Canal Towpath Trail. Visitation is highest in summer and fall, when the Towpath Trail becomes particularly crowded near high-use areas such as Boston, Peninsula, and Ira. The extreme north and south ends of the trail within the national park receive fewer users.

The study area is embedded within the Ohio & Erie Canalway National Heritage Area, which was designated in 1996 to protect the route of the Ohio & Erie Canal, the Cuyahoga Valley Scenic Railway, and other towns and sites associated with the historic transportation corridor along the Cuyahoga River. The National Heritage Area extends 110 miles along the river from Cleveland to New Philadelphia, Ohio. It is managed by the Ohio & Erie Canalway Association and other partners across the region, including the National Park Service.[3] Several other public agencies own and manage land near the Towpath Trail. Summit Metro Parks maintains a trailhead at Deep Lock, and the Towpath Trail intersects with the Buckeye Trail (managed by the Buckeye Trail Association) and Hemlock Creek Trail (managed by the City of Independence).

The entirety of Cuyahoga Valley National Park is encompassed in the Lower Cuyahoga River Ohio Important Bird Area identified by the Audubon Society. This Important Bird Area provides habitat for breeding populations of Cerulean Warbler, Hooded Warbler, Yellow-billed Cuckoo, Wood Thrush, and Scarlet Tanager, and is a spring and fall migratory stopover region for landbirds.[4]

Portions of the canal corridor have also been identified as eligible for designation as National Wild and Scenic Rivers System (WSR) sections. Based on the findings of the 2019 Outstandingly Remarkable Values (ORV) and WSR eligibility workshop, WSR Section 1 is Bath Road to Peninsula (route 303) and includes canal sections 1 and 2. The Outstandingly Remarkable Values (ORVs) in this WSR section are recreation and cultural/historic/prehistoric resources. The other WSR eligible section runs from the viaduct bridge in Peninsula to Station Road; this includes segments 3–5. The ORVs in this section are Recreation, Cultural/Historic/Prehistoric, Scenic and Ecological (Botany). In the long term, the park is planning to prepare a comprehensive river management plan to gain official designation as a National Wild and Scenic River System.

The park is surrounded by a variety of land uses representative of the greater northeast Ohio region. The trail passes through low-density residential and agricultural land uses, as well as small commercial, residential, and park administrative centers at Peninsula, Boston, and Everett. Trail users can see and hear vehicular traffic along much of the corridor. Although suburban and light industrial and commercial development have rapidly expanded in the surrounding area in recent years, the steep, unstable valley slopes and complex tributary ravine lands of the park discourage development and therefore buffer many nearby modern land uses from view.

Analysis and Evaluation

Land use along the canal corridor has changed since the period of significance. The most prominent missing land use is navigation of the canal, which is no longer feasible due to condition of the canal prism and removal of connective features such as the aqueducts. Existing recreational use is consistent with historic recreational use of the corridor toward the end of the period of significance, although current recreation is focused on the Towpath Trail rather than the canal prism. The Towpath Trail continues to serve as a transportation corridor, albeit one used by pedestrians and bicyclists rather than mules and

[3] Ohio & Erie Canalway, "More on the Canalway," accessed December 2021, https://www.ohioanderiecanalway.com/learn.

[4] Audubon, "Important Bird Areas: Cuyahoga Valley National Park – Lower Cuyahoga River," accessed December 2021, https://www.audubon.org/important-bird-areas/cuyahoga-valley-national-park-lower-cuyahoga-river.

horses. Education and preservation land uses continue to convey the canal corridor's history and significance.

Land use has also changed adjacent to the study area. During the period of significance, available arable land was converted to agriculture, and valley walls were harvested of timber. Mills and factories made use of the river (and even canal) as water sources for power and industrial cooling. As land within the valley was acquired by NPS, Cleveland Metroparks, or Summit Metro Parks for recreation and resource protection, forest cover rebounded, and the amount of land dedicated to agricultural and industrial uses decreased. Today, NPS engages with partners to enhance many park pursuits and maintain the character of the landscape, including rail and trail systems, agricultural activities, resource conservation, and recreational activities and events.[5]

Overall Study Area Buildings and Structures

Buildings and structures within the study area include both canal structures and buildings developed along the canal corridor. Historic canal structures are identified on drawings EC-2 through EC-5 (see pages 3.49, 3.61, 3.83, and 3.127). Appendix A identifies all canal structures and station numbers along the canal corridor at a higher level of detail. Images of individual features are provided in segments 1 through 7 of this chapter.

Canal structures (locks, aqueducts, culverts, waste structures, dams and feeders, the mudcatcher, bridges, and basins) are built features that facilitated the movement of water and boats through the canal; managed the movement of water between the canal, river, and other tributaries; or supported movement across the canal prism. Definitions for each type of canal structure are provided in the following narrative. Existing condition and evaluation of canal structures within this report builds on the 2019 *Ohio & Erie Canal History and Historic Structures Assessment*, which provides a detailed history, description, record of documentation, and condition assessment for each canal structure. This section provides a brief description and significance evaluation of existing canal structures and incorporates additional conditions identified during 2020–2021 field investigations.

Table 3-2, Canal Buildings and Structures Documentation, contains a list of all of the canal-related buildings and structures within the study area and convenient documentation related to these features. For each feature the table includes station numbers that correlate to the park GIS and early surveys, construction dates, dates of major alterations, Ohio Historic Inventory numbers, NPS historic structure and list of classified structures numbers, 2021 condition assessment, 2021 update to 2019 Historic Structure Assessment (HSA) condition assessment, significance evaluation, and notes. The 2019 HSA contains additional detailed condition information on canal structures that was not updated as part of this CLR. Contributing buildings within the study area are also identified in this table. Note that buildings are not addressed in 2019 HSA documentation.

[5] National Park Service, *Cuyahoga Valley National Park Foundation Document* (US Department of the Interior, National Park Service, 2013), 5.

Table 3-2: Contributing status and condition of Canal Structures										
Feature	**Location 1892 mapping**	**Location 1912/1916/1928 mapping**	**Location (station number)**	**Construction Date**	**Alteration Dates**	**OHI #**	**HS # LCS #**	**Condition per 2019 HSA**	**Condition updates since 2019 HSA**	**Evaluation**	**Comments**
LOCKS											
Lock 24 (Niles/Botzum Lock)	1414+50	1419+54	1424	1827	reconstructed 1905-1906	SUM-0051-07	HS-102 011149	Fair	No discernible difference	Contributing	Only west wall of lock remains; affected by natural deterioration processes
Lock. 25 (Mudcatcher Lock)	1401+50	1406+42	1409	1827	reconstructed 1905-1906	SUM-0050-07	HS-103 011150	Poor	Cracking appears more prevalent	Contributing	Only west wall of lock remains; affected by natural deterioration processes
Lock. 26 (Pancake Lock)	1360+40	1365+40	1369	1827	reconstructed 1905-1906	SUM-0029-07	HS-104 011151	Fair	No discernible difference	Contributing	Standing water in lock from Beaver Marsh; affected by natural deterioration processes
Lock 27 (Johnny Cake Lock)	1277+75	1282+50	1280	1825	reconstructed 1906	SUM-0027-04	HS-106 011153	Fair	No discernible difference	Contributing	Standing water in lock; affected by natural deterioration processes
Lock 28 (Deep Lock)	1160+25	1164+04	1167	1825	reconstructed 1905-1906 major repairs 1909	SUM-0026-04	HS-107 011154	Fair	No discernible difference	Contributing	Standing water in lock; affected by natural deterioration processes
Lock 29 (Peninsula Lock)	1122+50	1125+91	1123	1827	reconstructed 1906	SUM-0056-04	HS-110 011157	Good	No discernible difference	Contributing	
Lock 30 (Feeder Lock)	1106+50	1109+48	1112	1827	reconstructed 1905-1906	SUM-0025-04	HS-111 011158	Fair	No discernible difference	Contributing	Affected by natural deterioration processes
Lock 31 (Lonesome Lock)	1067+00	1069+76	1068	1825	reconstructed 1905-1906	SUM-0024-04	HS-112 011159	Fair	No discernible difference	Contributing	Affected by natural deterioration processes
Lock 32 (Boston Lock)	995+25	997+60	995	1825	reconstructed 1905-1906	SUM-0053-04	HS-114 011161	Fair	No discernible difference	Contributing	Affected by natural deterioration processes
Lock 33 (Wallace Lock/Lost Lock)	956+00	958+28	954	1825	reconstructed 1905-1906	SUM-0028-01	HS-115 011162	Poor	No discernible difference	Contributing	Affected by natural deterioration processes
Lock 34 (Red Lock)	906+50	906+16	902	1825	reconstructed 1906	SUM-0044-01	HS-116 011163	Fair	No discernible difference	Contributing	Standing water in lock; affected by natural deterioration processes
Lock 35 (Whiskey Lock/Kettlewell Lock)	813+00	812+30	812	1825	reconstructed 1906	SUM-0043-01	HS-117 011164	Fair	No discernible difference	Contributing	Affected by natural deterioration processes
Lock 36 (Pinery Lock/17 Mile Lock)	764+00	763+43	758	1825	reconstructed 1905-1906	SUM-3252-01	HS-118 011165	Fair	No discernible difference	Contributing	Lock buried--only northwest wingwall visible
Lock 37 (14 Mile Lock)	613+00	611+46	612	1826	reconstructed 1905-1906	CUY-0463-19	HS-121 011168	Fair	Increased woody vegetation and sloughing of ground surface south of east wall	Contributing	Large silt buildup at upstream end
Lock 38 (12 Mile Lock)	535+50	533+75	537	1826	reconstructed 1905-1906; rehabilitated 1984 as demonstration lock	CUY-0461-19	HS-126 011173	Good	No discernible difference	Contributing	
Lock 39 (11 Mile Lock)	457+00	455+00	457	1827	reconstructed 1905-1906	CUY-0460-19	HS-128 011175	Fair	No discernible difference	Contributing	Large silt buildup at upstream end

Table 3-2: Contributing status and condition of Canal Structures											
Feature	**Location 1892 mapping**	**Location 1912/1916/1928 mapping**	**Location (station number)**	**Construction Date**	**Alteration Dates**	**OHI #**	**HS # LCS #**	**Condition per 2019 HSA**	**Condition updates since 2019 HSA**	**Evaluation**	**Comments**
AQUEDUCTS											
Furnace Run Aqueduct	1289+33	1294+00	1289	1860	reconstructed 1877, 1892 flood destroyed 1913	SUM-0049-07	HS-105 011152	Fair	No discernible difference	Contributing	Only north abutment remains
Peninsula Aqueduct	1123+21	1126+84	1123	1827	reconstructed 1872, 1901, 1905 flood destroyed 1913	SUM-0056-04	HS-110 011157	Fair	No discernible difference	Contributing	Only abutments remain. Vegetation obscures south end of the north abutment. NPS has done some vegetation management at the south abutment to improve visibility.
Tinkers Creek Aqueduct	567+00	566+00	567	1825	reconstructed 1837, 1896, 2009	CUY-0462-19	HS-123 011170	Good	No discernible difference	Non-contributing compatible	New structure Vegetation encroachment in prism
CULVERTS											
Yellow Creek Culvert	1447+50	1452+87	1458	1844	canal prism destroyed 1930s	SUM-0052-07	HS-101 011148	Fair	No discernible difference	Contributing Non-contributing	West side - historic East side - new
Ira Road Culvert	no	1383+00	1387	1908		SUM-3245-07		Fair	No discernible difference	Contributing	Historic
Furnace Run Towpath Bridge	no	no	1289					Good	N/A	Non-contributing	
Towpath Bridge Over Stream	no	no	1232					Good	N/A	Non-contributing	
Towpath Bridge over Stream	no	no	1195					Good	N/A	Non-contributing	
Arch Culvert	1186+70	1190+98	1195	1825-1827						Non-contributing	Couldn't identify arch culvert - new bridge and abutment
Towpath Bridge over Stream	no	no	1168					Good	N/A	Non-contributing	
Stanford Run Culvert South	970+60	973+02	969	1892 survey		SUM-3249-01		Poor	No discernible difference	Contributing	
Stanford Run Culvert North	959+80	961+94	958	1825-1827	possible repair 1905-1909	SUM-3250-01		Poor	N/A	Contributing	Not located in landscape
Stanford Run Culvert (new)	no	no		2020				Good	New	Non-contributing	
Towpath Bridge Over Stream	no	no	931					Good	N/A	Non-contributing	
Brandywine Creek Culvert	921+36	921+39	917	1892 survey	rehabilitated 1905	SUM-3262-01		Fair	No discernible difference	Contributing	
±8' x 4' Box Culvert	no	no	902					Fair	N/A	Non-contributing	
Double Elliptical Steel Culvert	no	no	869					Good	N/A	Non-contributing	
Towpath Bridge over Stream	no	no	856					Good	N/A	Non-contributing	
Box Culvert	no	no	785					Good	N/A	Non-contributing	

Table 3-2: Contributing status and condition of Canal Structures											
Feature	**Location 1892 mapping**	**Location 1912/1916/1928 mapping**	**Location (station number)**	**Construction Date**	**Alteration Dates**	**OHI #**	**HS # LCS #**	**Condition per 2019 HSA**	**Condition updates since 2019 HSA**	**Evaluation**	**Comments**
Towpath Bridge over Feeder Channel	no	no	759					Good	N/A	Non-contributing	
Sagamore Creek Culvert	no	no	636	1825-1827	replaced 1914, 2009	CUY-6534-19		Good	No discernible difference	Non-contributing	New
Box Culvert	no	no	505	1909	replaced 2005	CUY-6537-19		Good	No discernible difference	Non-contributing	New
Double Box Culvert	no	no	479	1825-1827	replaced 2005	CUY-6287-19		Good	No discernible difference	Non-contributing	New
WASTE STRUCTURES											
Flood Gate			1378	1905-1909	buried 1991				Couldn't identify		Couldn't find - buried
Bolanz Flood Gate	1300+00	1305+25	1302	1826	walls rebuilt 1991	SUM-3244-07		Fair	No discernible difference	Contributing	
Goose Pond Waste Weir	863+66	863+50	864	1892 map	reconstructed 1903	SUM-3248-01		Fair	No discernible difference	Contributing	Stream bed erosion upstream Stream bank erosion downstream
Hooker's Run Flood Gate	no	838+34	838	1905-1909	walls rebuilt 1990	SUM-3247-01		Poor	No discernible difference	Contributing	
Sagamore Creek Flood Gate and Waste Weir	Sta 639+80	Sta 638 +10	638	1892 survey	replaced 1905	CUY-6535-19	HS-130	Poor	No discernible difference	Contributing	
Waste Weir	no		637	1914		CUY-6533-19		Fair	No discernible difference	Non-contributing	Added just after end of period of significance
Flood Gate			612	1905	repairs 2016	CUY-6282-19	HS-129	Fair	No discernible difference	Contributing	Very dangerous safety issue
Waste Weir			464	1892 survey	replaced 1905			Fair	No discernible difference	Contributing	
FEEDER COMPLEX											
Peninsula Feeder Complex	1106+50	1109+75	1109	1830	reconstructed 1884 repaired 1902	SUM-3243-04		Poor	No discernible difference	Contributing	
Pinery Feeder Channel	763+50-772	763-771+50	770 to 763	1828	reconstructed 1875 and 1877	SUM-3254-01	HS-133	Poor	No discernible difference	Contributing	Pinery Dam demolished 2020
MUDCATCHER											
Galley Run Mudcatcher	no	758+00	755	1826	reconstructed 1908	SUM-3251-01	HS-132	Fair	No discernible difference	Contributing	
BRIDGES											
Private Bridge (ruin of abutments)			1285+00	By 1892	Not present on 1912 survey			Good		Contributing	
Railroad Bridge Retaining Wall			1167+00	Undetermined				Good		Undetermined	
Bridge over Lock 34 Wasteway	906+80	905+80	905+80	Undetermined				Good		Portions contribute	Road is present on 1912 survey; current concrete superstructure likely post-dates 1913. Stone abutments likely date to period of significance.
Tinkers Creek Road Bridge			567+00					Good	Not addressed in 2019 documentation	Portions contribute	Stone abutments likely date to period of significance

Table 3-2: Contributing status and condition of Canal Structures											
Feature	**Location 1892 mapping**	**Location 1912/1916/1928 mapping**	**Location (station number)**	**Construction Date**	**Alteration Dates**	**OHI #**	**HS # LCS #**	**Condition per 2019 HSA**	**Condition updates since 2019 HSA**	**Evaluation**	**Comments**
PRISM											
Canal Prism	n/a	n/a		1827		Identified in Segment sections of Chapter 3	HS-100 105037	Varies		Contributing	
BASINS											
Basins			1194+00 and 1197+00	by 1912				Fair/Poor	Dense vegetation, basin is not easily discernable	Contributing	Southern basin not found in 2019 HSA; similarly overgrown shallow depression in 2021
Peninsula Basin	1130+00	no	1133+00 to 1136+00	by 1892	likely filled by 1912			Poor	Dense vegetation, basin is not easily discernable	Contributing	Near existing access road
Stumpy Basin	1048-1060	1051-1060	1051+00 to 1060+00	By 1892				Fair	No discernable difference	Contributing	Wetland ecosystem and extensive sedimentation; still easily discernable as basin
Boston Basins	992+00-995+00	990+50-997+00	990+50 to 997+00	by 1912	Basin north of the lock partially filled before 1912			Good/fair	No discernable difference	Contributing	
Basin			870+00 to 873+00	by 1892				Fair/Poor	No discernable difference	Contributing	Dense vegetation, basin is not easily discernable but depression remains. Culverts blocked near this location.
Pinery Basin			767+00 to 771+50	by 1892	partially filled before 1912			Fair/Poor	Heavily overgrown	Contributing	Difficult to discern in landscape
Basin			523+00 to 527+50	by 1892	likely filled during Canal Road construction			Poor	No discernable difference	Contributing	
BUILDINGS											
Alexander's (Wilson's) Mill				1855		CUY-0458-19	HS-120	Poor		Contributing	Lies within NHL boundary. Formerly known as Lock Tender's House.
Canal Exploration Center				ca. 1830		CUY-0438-19	HS-125	Good		Contributing	Lies within NHL boundary. Formerly known as Lock Tender's House.
Canal Exploration Center Train Station								Good		Non-contributing	
Boston Land and Manufacturing Company Store (Boston Store)				1835		SUM-0071-04	HS-430	Good		Contributing	Contributes to Boston Mills Historic District (canal era).
Boston Land and Manufacturing Company Store Barn				ca. 1900				Good/Fair		Contributing	Contributes to Boston Mills Historic District (canal era).
Woodrow O. and Helen R. Johnson House				1910						Contributing	Contributes to Boston Mills Historic District (canal era).
Conger-Jackson House				1835						Contributing	Contributes to Boston Mills Historic District (canal era).

Table 3-2: Contributing status and condition of Canal Structures											
Feature	**Location 1892 mapping**	**Location 1912/1916/1928 mapping**	**Location (station number)**	**Construction Date**	**Alteration Dates**	**OHI #**	**HS # LCS #**	**Condition per 2019 HSA**	**Condition updates since 2019 HSA**	**Evaluation**	**Comments**
M.D. Garage				1946						Non-contributing	
Volunteer Center (Savacoal House)				1920						Non-contributing	Contributes to Boston Mills Historic District (company town era).
Comfort Station (Joseph Dzerzynski House)				1927						Non-contributing	Contributes to Boston Mills Historic District (company town era).
Moody and Thomas Grist Mill ruins				1832				Poor		Contributing	Mill burned down in 1931. Ruins contribute to Peninsula Historic District.
Peninsula Train Station								Good		Non-contributing	
Peninsula Comfort Station								Good		Non-contributing	
Peninsula Depot											Outside of study area. Contributes to Peninsula Historic District.
Stephen Frazee House				1826			HS-401				Outside of study area
Edmund Gleason House				1851			HS-403				Outside of study area
Edmund Gleason Barn							HS-404				Outside of study area
William Knapp House				1836			HS-408				Outside of study area
Brown/Bender Farm				1840							Outside of study area
Abraham Ulyatt House (Birth House)				1849			HS-409				Outside of study area
Jaite Mill				1906				Missing		Missing	North of Boston. Previously listed as Jaite Mill Historic District.
Businesses, Storehouses, and Sheds along canal corridor during period of significance								Missing		Missing	

Locks

Lift locks were used to raise and lower boats passing from one level of the canal to another. The primary structure of the lock was a stone chamber with two parallel walls approximately 90 feet long, with inner faces of the walls set 15 feet apart. Typically, the ends of the lock were protected by wing walls. Except for Lock 29, which was constructed entirely of cut stone, lock walls were stone masonry and poured concrete. Wooden gates occupied either end of the lock and contained sluices that could be adjusted to raise or lower the water level in the lock chamber. Gate movement was controlled by a balance beam that extended outside of the lock structure to provide leverage.[6] Table 3-2 provides detailed information about the condition, location, construction and modification dates, and evaluation for each of the locks.

Character-defining features of the study area's locks are described in the 2019 *Ohio & Erie Canal History and Historic Structures Assessment*:

> Character-defining features of lift locks include: surviving elements of the structure's basic form and design as a concrete or stone masonry chamber with gates at each end; the vertical and horizontal dimensions of the lock; the concrete or stone walls including the surface treatment; the concrete or stone coping on top of the walls; the wooden substructure/ foundation; the wooden flooring; surviving components of the wooden gates and gate posts together with the valves and the metal hardware that supported the gates and controlled the valves; the breast wall and miter sills; the recesses in the walls which accommodated the gates when open, including the hollow quoins; the internal culvert at the upper end of the lock, including the inlet and discharge openings; the concrete or stone wing walls; the waste way around the lock including the tumble and Spillway; and any evidence of craftsmanship and construction techniques such as mason's marks, quarrying marks, formwork marks, and recesses/indentations for the bumping beams, goose neck hardware, snubbing posts, and former bridges spanning the lock chamber.[7]

Analysis and Evaluation

The 16 locks within the study area were originally constructed between 1825 and 1827, with substantial repairs in 1876–1877, 1887, and 1904–1909. Portions of all locks in use during the period of significance are extant and contribute to the historic character of the landscape.

Lock Nos. 24 through 35 were abandoned when canal operations ceased in 1913 and are now situated in the "unwatered" portion of the canal. Locks 24 and 25 have been partially demolished due to road development, but the remainder of the locks in this section of the canal corridor have been affected by natural deterioration processes.

Lock Nos. 36 through 39 were maintained by American Steel and Wire/U.S. Steel until 1992. These locks are located along the "watered" section of the canal, which will be supplied with moving water via a pump planned for installation near Station Road Bridge in 2022. Locks No. 36 through 39 are typically in better condition than the locks along the southern end of the canal corridor, although Lock 36 is almost completely deteriorated and has been integrated into a trail bridge. In 1991–1992, NPS personnel restored Lock 38 to its 1907 appearance as an operating lock.[8]

Aqueducts

Aqueducts carried the canal across tributaries of the Cuyahoga River. The Ohio & Erie Canal's aqueducts were constructed as wooden troughs or "trunks" supported by masonry piers and abutments. Due to their

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[6] Heberling Associates, Inc., *Ohio & Erie Canal History and Historic Structures Assessment* (Alexandria, Pennsylvania: Friends of the Crooked River and Cuyahoga Valley National Park, 2019), 145-153.

[7] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 153.

[8] Heberling Associates, *Ohio & Erie Canal History and Historic Structure Assessment*, 59.

long spans, exposed locations, and the combined weight of materials, water, and canal traffic, aqueducts posed significant challenges for canal engineers and required frequent repairs and occasional reconstruction. The two aqueducts at Tinkers Creek and the Village of Peninsula were constructed as part of the original design of the canal; another aqueduct was added at Furnace Run in 1860 to replace an undersized culvert.[9] Table 3-2 provides detailed information about condition, location, construction and modification dates, and evaluation for each of the aqueducts.

The character-defining features of an aqueduct relate to its function of carrying an elevated section of the canal over a stream and include:

> The location, the length of the span, the height of the structure, the dimensions of the trough, and evidence of construction methods are character-defining features. For the substructure (stone abutments and piers), important features include the stone itself, the way it was cut and shaped, and the manner in which it was laid-up. In the case of the three canal aqueducts in Cuyahoga Valley National Park, the substructure is the only surviving historic fabric.[10]

Both the Peninsula and Furnace Run Aqueducts were destroyed in the 1913 flood and were not rebuilt. By 2002, the Tinkers Creek Aqueduct had deteriorated to the point that it could no longer hold water. It was reconstructed in 2009 as a two-space concrete trough with the same dimensions as the historic structure.[11]

Analysis and Evaluation

Although none of the three aqueducts have any extant superstructure, the remaining stone abutments (including the placement and surface finish of the stones) contribute to the historic character of the landscape.

Culverts

Culverts carried small streams beneath the canal prism and towpath berm. As secondary canal structures, culverts were typically not included in the original contract specifications but addressed on a case-by-case basis, handwritten into contracts by an acting commissioner or state engineer as needed. Culverts were added or removed from the canal corridor throughout its history as the local hydrology evolved. Contracts were awarded for 24 culverts within the study area during initial canal construction in 1825–1827. The 1892 D.C. Kennon survey identified 16 culverts within what is now the park; 13 culverts were recorded in 1912, following repair, removal, or replacement of numerous features during northern division improvements in 1905–1909.[12] As described in the 2009 Cultural Landscape Inventory, both box culverts and arch culverts were used within the study area during the period of significance:

> Arch culverts were formed of stone, cut in regular segments and laid in range work, with wingwalls and parapet walls of cut stone; the masonry was erected on a floor of hewn timbers secured by sheet piling at both the head and the foot. Box culverts, constructed of broad pieces of timber, served as land drains or carried small springs under the canal; in general, apertures ranged from 8 to 16 inches square and placement was restricted to where the culvert would always be under water so as to reduce the possibility of premature decay.[13]

Historic culverts are extant at 9 of the 13 locations identified in 1912, although three culverts along the watered section have been replaced with new concrete box culverts since 2005. In addition, 11 modern bridges or large culverts and approximately 45 smaller culverts have been added along the Towpath Trail

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[9] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 307.

[10] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 307.

[11] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 307.

[12] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 335-336.

[13] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 67.

to address changing conditions within the Cuyahoga River watershed. Table 3-2 provides detailed information about condition, location, construction and modification dates, and evaluation for each of the historic culverts.

Character-defining features of remaining historic culverts are described in the 2019 *Ohio & Erie Canal History and Historic Structures Assessment*:

> For stone culverts, these include the stone itself, the way it was cut and shaped, and the manner in which it was laid-up to form the arch, facewalls, and wing walls. For concrete culverts the surface finish and the dimensions of the opening are character-defining features. The earthen/rubble fill within the walls is not significant [14]

Analysis and Evaluation

The six culverts constructed during the period of significance and remaining in their historic locations contribute to the historic character of the study area: Yellow Creek Culvert, Ira Road Culvert, arch culvert, Stanford Run Culvert South, Stanford Run Culvert North, and Brandywine Creek Culvert. Three features reconstructed at Sagamore Creek Culvert, Box Culvert (Station 504+88), and Double Box Culvert (Station 478+90) were replaced in 2005 and are noncontributing, along with modern culverts added since the end of the period of significance.

Waste Structures

Waste structures, including weirs and floodgates, are control components that served to regulate the canal water level and provide protection during high water events. A weir is a low dam in line with the edge of the canal that allowed for excess water to overflow out of the canal and into a waste way to return to the river.[15] A floodgate is a manmade channel for conducting water located within a dam or embankment that allows for controlled water flow through valves or gates. Both floodgates and weirs are typically located where the canal prism passes close to the river to minimize the length of the wasteway.

Only one waste weir was contracted within the study area during original construction in 1825 (Bolanz). 1892 survey mapping of the canal identified eleven waste structures, none of which survive today. By 1912, 14 waste structures were recorded within what is now the park; many of these structures were added during the 1905–1909 improvement of the northern division. Eight of the fourteen structures survive today: Floodgate (Station 1378+31), Bolanz Floodgate (Station 1305+46), Goose Pond Waste Weir (Station 863+50), Hooker's Run Floodgate (Station 838+34), Sagamore Creek Floodgate and Waste Weir (Station 638+10), Waste Weir (Station 636+10), Floodgate (Station 613+00), and Waste Weir (Station 460+44). Table 3-2 provides detailed information about the condition, location, construction and modification dates, and evaluation for each of the waste structures.

Character-defining features of waste structures are identified in the 2019 *Ohio & Erie Canal History and Historic Structures Assessment*:

> These design elements include the surface finish and the dimensions of the opening, together with the concrete or masonry guides for the gates, even if the gates and operating mechanisms are no longer extant. For structures along the watered section of canal, any surviving components of the wooden gates and operating mechanisms that date to the period of significance are character defining features.[16]

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[14] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 336.

[15] A similar system of waste ways allowed for water overflow around locks; in some documents, these are also called "waste weirs."

[16] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 375.

Analysis and Evaluation

The seven waste structures retained from the period of significance are contributing. Bolanz Floodgate was completely deconstructed and rebuilt in 1991. Although consistent with the historic character of the landscape, the feature is non-contributing because there are no original materials remaining.

Dams, Feeders, and Other Water Control Structures

Within the study area, feeders were constructed at Peninsula and the Pinery Narrows to ensure adequate water supply for the canal. Feeder complexes typically consisted of a V-shaped timber crib-dam across the river to create an impoundment; a set of head gates that diverted water from the river into the feeder and regulated the flow of water; the feeder channel, a wide ditch that carried water from the dam to the canal; and the waste gates, which returned excess water to the river.[17] Table 3-2 provides detailed information about the condition, location, construction and modification dates, and evaluation for the feeder complexes and mudcatcher. Character-defining features of the feeder complexes include:

> . . .surface finish and the dimensions of the opening, together with the concrete or masonry guides for the gates, even if the gates and operating mechanisms are no longer extant. For timber cribdams, important defining features include the length, height, and key elements of the original design with later modifications. For feeder channels the overall dimensions and the appearance as an earthen ditch for water transport are the character-defining features.[18]

The Galley Run Mudcatcher was constructed where the Galley Run tributary downstream of Twin Sisters Falls drains directly into the canal as a water source. The structure is designed to capture sediment and debris behind a dam, allowing clean water to flow into the canal. Its character-defining features include the surface finish and dimensions of the opening, the concrete guides for the gates, and the apron and side walls of the sluice.[19]

Analysis and Evaluation

The Peninsula Feeder Complex, Pinery feeder channel, and Galley Run Mudcatcher are contributing features. The mid-twentieth-century Pinery Dam was recently removed as part of river restoration efforts; although the headgates remain, they postdate the period of significance and are non-contributing

Bridges

Bridges were necessary to carry roads, farm lanes, the railroad, and periodically the Towpath Trail over the canal prism. The majority of bridges present along the canal corridor today, which include three road bridges, three road overpasses, and two railroad crossings are twentieth-century additions that post-date the 1913 flood. Remnants of historic bridge abutments survive in four locations along the canal corridor: Private bridge (Station 1285+00), Railroad bridge retaining wall (Station 1167+00), Bridge over lock 34 wasteway (Station 905+80), and the Tinkers Creek Road Bridge. Table 3-2 provides detailed information about the condition, location, construction and modification dates, and evaluation for each of the historic bridges.

Analysis and Evaluation

Remnants of historic bridge abutments contribute to the historic character of the study area, although the Tinkers Creek Road Bridge is outside of the park boundary. All bridges added after 1913 are non-contributing features. The Station Road Bridge, although outside of the study area, is also individually

[17] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 435.

[18] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 435.

[19] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 459.

listed on the National Register of Historic Places, and the Boston Mills Road Bridge contributes to the Boston Mills Historic District.[20]

Canal Prism

The canal prism was a water-filled earthen channel through which boats were pulled by horses or mules walking on the historic towpath. The Ohio & Erie Canal prism was originally constructed to minimum dimensions of 26 feet wide at the bottom at 45 feet wide at the top (water line), which allowed two boats to pass side by side. Water was retained in the prism by the towpath berm between the canal prism and the river, which included both the 10-foot-wide towpath situated 2 to 5 feet above the water line, and a minimum 6-foot-wide "berm" bank on the opposite side. Actual constructed dimensions of the prism were often highly variable and much larger than the minimum. The prism was constructed entirely of soil and loose rock, with stone reinforcement placed as necessary along the outer (river) side of the towpath berm where erosion was prevalent. A thick 2- to 3-foot layer of clay lined the interior of the prism in order to make it watertight.

Today, the watered section of the canal between Rockside Road and Station Road Bridge is clearly discernable and retains its general layout and dimensions from the period of significance. As water is no longer being diverted into the canal, water levels were low within the prism at the time of field investigations in April 2021. Water will once again be diverted into the prism from the Cuyahoga River following installation of the pump in 2022. Herbaceous wetland vegetation and reeds are prevalent in the canal, and many locations exhibit deep siltation (refer to the *Overall Study Area Natural Systems and Topography* section and descriptions of segments 6 and 7).

The condition of the unwatered canal prism varies widely. In some areas, the shape of the prism is clearly visible; however, other portions of the canal are overgrown with woody vegetation or obscured by erosion and siltation. Beaver damming, nonfunctional culverts, or lack of drainage opportunities also causes some segments of the unwatered canal to retain runoff; in these locations, woody vegetation is typically less dense and the layout of the prism is easily discernable (refer to descriptions of segments 3 and 5). Between Boston and Peninsula and south of Ira Road, portions of the prism have been destroyed by modern development, and the relationship between the prism, historic towpath, and river is no longer visible (refer to descriptions of segments 4 and 1).

Analysis and Evaluation

Portions of the canal prism extant within the landscape contribute to the historic character of the study area. This includes both "unwatered" segments where vegetation and/or hydraulic conditions vary from the historic condition and "watered" segments where the prism's shape, hydraulic conditions, and vegetation are relatively consistent with the period of significance. Contributing portions of the canal prism total approximately 19.5 miles within the 22-mile-long study area.

Areas where the canal prism no longer reflects the historic character of the cultural landscape include:

- South of Ira Road (1.8 miles, refer to Segment 1)
- Between Lock 30 and Lock 31 (0.25 miles, refer to Segment 3)
- Between I-80 and I-271 (0.5 miles, refer to Segment 4)

Basins

Basins were widened areas along the canal prism where boats could turn around, wait to pass through a lock, or transfer passengers and cargo. Twelve basins were identified within the study area on 1892 and 1912 survey mapping; the recorded size of the features varied widely, as there were no defined standards for constructing basins. Today, seven basins are recognizable on the landscape as shallow depressions,

[20] National Register of Historic Places, Boston Mills Historic District, Boston Township, Summit County, Ohio, National Register #92001490.

some of which retain water from runoff, flooding, or tributaries of the Cuyahoga River. Due to siltation and vegetative growth, many of the basins are in poor condition and are difficult to identify along the canal corridor. Table 3-2 provides detailed information about the condition, location, construction and modification dates, and evaluation for each of the remaining basins.

Analysis and Evaluation

Extant basins along the canal corridor contribute to the historic character of the study area. Vegetation and siltation are impacting these features.

Buildings

Twenty-one buildings are located within the study area, almost all of which are clustered in the three detail areas. Numerous additional buildings are visible from the Towpath Trail. The vast majority of buildings and structures along the study area date to the period of significance and are individually listed in the National Register of Historic Places or contribute to a Historic District. Individual buildings within the study area are described in Segments 1 through 7, or in the Canal Exploration Center, Boston, or Peninsula Detail Areas.

Analysis and Evaluation

Clusters of historic structures are retained at several locations along the canal corridor. Buildings that contribute to the canal corridor period of significance within the study area include:

- Alexander's (Wilson's) Mill (1855).[21]
- Canal Exploration Center (Lock Tender's House and Inn) (ca. 1830s).[22]
- Boston Land and Manufacturing Company Store and Barn (1835/ca. 1900)
- Woodrow O. and Helen R. Johnston House (1910)
- Conger-Jackson House (1835)

Buildings or historic districts listed in the National Register of Historic Places outside of the study area but visible from the Towpath Trail include:

- Everett Historic District (ca. 1830–1935)[23]
- Peninsula Village Historic District (1825–1899)[24]
- Boston Mills Historic District (1827–1927, contributing buildings within the Boston Detail Area are listed above)[25]
- Stephen Frazee House (1826)[26]
- Edmund Gleason House (1851)[27]

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[21] National Register of Historic Places, Wilson Feed Mill, Cuyahoga County, Ohio, National Register #79000298, https://npgallery.nps.gov/AssetDetail/NRIS/79000298.

[22] Carol Poh Miller, "Lock Tender's House and Inn," Ohio Historic Inventory, Ohio Historic Preservation Office, June 27, 1979.

[23] National Register of Historic Places, Everett Historic District, Summit County, Ohio, National Register #93001467, https://npgallery.nps.gov/AssetDetail/NRIS/93001467.

[24] National Register of Historic Places, Peninsula Village Historic District, Summit County, Ohio, National Register #74000346, https://npgallery.nps.gov/AssetDetail/NRIS/74000346.

[25] National Register of Historic Places, Boston Mills Historic District, Summit County, Ohio, National Register #92001490, https://npgallery.nps.gov/AssetDetail/NRIS/92001490.

[26] National Register of Historic Places, Stephen Frazee House, Cuyahoga County, Ohio, National Register #76000211, https://npgallery.nps.gov/AssetDetail/NRIS/76000211.

[27] National Register of Historic Places, Edmund Gleason House, Cuyahoga County, Ohio, National Register #78000377, https://npgallery.nps.gov/AssetDetail/NRIS/78000377.

- William Knapp House (1836)[28]
- Brown/Bender Farm (1840)[29]
- Abraham Ulyatt House (Birth House)[30]

Significance of buildings and historic districts along the canal corridor is tied to construction and use of the Ohio & Erie Canal as well as individual architectural features, community development, and archeological potential.

Buildings associated with the Jaite Mill Historic District were destroyed by fire in 1992 and no longer extant along the canal corridor. Also missing are numerous businesses, storehouses, and sheds located immediately adjacent to locks within the study area that serviced the canal while in use.

Overall Study Area Circulation

Ohio & Erie Canal Towpath Trail

The Ohio & Erie Canal Towpath Trail (also referred to as the "Towpath Trail" within this document) is a 6'–12' wide shared pedestrian and bicycle trail extending for approximately 22 miles from the north to the south end of Cuyahoga Valley National Park. Between Rockside Road and Ira Road, the trail generally follows the historic alignment of the canal towpath established during the construction of the Ohio & Erie Canal in 1827. Where the trail follows the historic route of the towpath, it is situated on a berm between the canal prism and the Cuyahoga River. Segments of the Towpath Trail that deviate from the historic towpath location are identified below.

The Towpath Trail is paved with a variety of surfaces including limestone fines, asphalt, asphalt with chip-seal surface, and boardwalk. Figure 3-1 through 3-6 illustrate typical Towpath Trail surfaces and conditions within the study area. Locations of surfaces and trail conditions are described in Segments 1 through 7.

Analysis and Evaluation

During the period of significance, the historic towpath was a dirt track of variable width situated on top of the ten-foot-wide berm between the prism and the river. None of the existing trail surfaces are representative of the original path, although limestone fines and chip and seal asphalt approximate the informal character of the historic surface. The existing Ohio & Erie Canal Towpath Trail follows the route of the original towpath for most of its length through the study area.

Extant portions of the historic towpath route and its associated berm contribute to the historic landscape. Portions of the existing Towpath Trail that do not follow the historic route are:

- South of Ira Road (1.8 miles destroyed by modern road construction, refer to Segment 1)
- Between Lock 30 and Lock 31 (0.25 miles destroyed by changes in the Cuyahoga River flow pattern, refer to Segment 3)
- Between I-80 and I-271 (0.5 miles destroyed by modern road construction, refer to Segment 4)

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[28] National Register of Historic Places, William Knapp House, Cuyahoga County, Ohio, National Register #79000289, https://npgallery.nps.gov/AssetDetail/NRIS/79000289. The house has been identified for future demolition pending Section 106 review.

[29] National Register of Historic Places, Brown/Bender Farm, Cuyahoga County, Ohio, National Register #93000076, https://npgallery.nps.gov/AssetDetail/NRIS/93000076.

[30] National Register of Historic Places, Abraham Ulyatt House, Cuyahoga County, Ohio, National Register #79000297, http://npshistory.com/publications/cuva/nr-abraham-ulyatt-house.pdf.

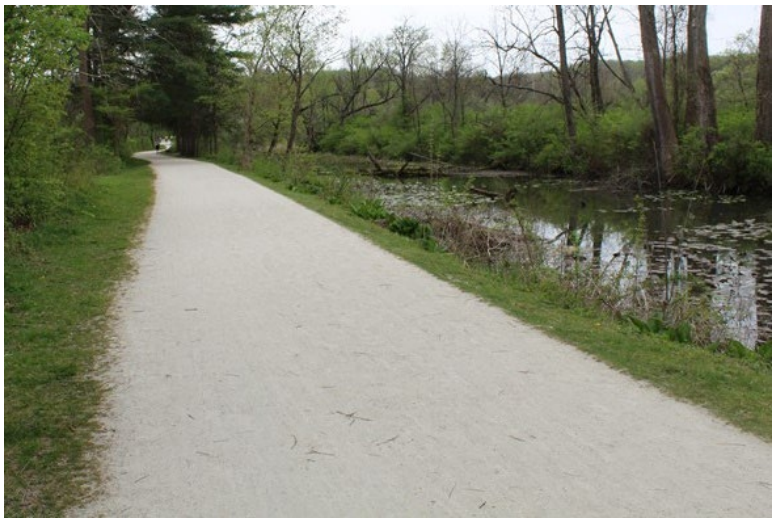


Figure 3-1: Good condition limestone fines surface south of Beaver Marsh (QE, 2021).



Figure 3-2: Poor condition limestone fines surface north of Lock 37 (QE, 2021).



Figure 3-3: Good condition asphalt surface north of Station Road Bridge (QE, 2021).



Figure 3-4: Poor condition asphalt surface within Pinery Narrows (QE, 2021).



Figure 3-5: Good condition chip seal north of Botzum Trailhead (QE, 2021).



Figure 3-6: Fair condition boardwalk at Stumpy Basin (QE, 2021).

Local Roads

Canal Road, Riverview Road, and Akron-Peninsula Road are two-lane, north–south, asphalt-paved local roads running parallel to the canal corridor along the length of the park. Eight east–west local roads intersect with the Towpath Trail: Hillside Road, Fitzwater Road, West Aurora Road (Ohio Route 82), West Highland Road, Boston Mills Road, Bolanz Road, Ira Road, and West Bath Road. Bridges associated with Stone Road and Tinkers Creek Road remain in place along the Towpath Trail but are blocked to vehicular traffic (refer to EC-5 on page 3.131).

Analysis and Evaluation

Local roads developed throughout the period of significance as economic activity and development, first driven by the canal and later the railroad, expanded in the Cuyahoga Valley. As the population of the valley increased, roads transitioned from notoriously impassible dirt roads to stabilized plank or gravel routes. Most of the local routes along the canal corridor are documented in historic maps or photographs by the mid- to late 1800s.

Although widened and paved to meet modern road standards, the routes of Akron-Peninsula Road, Canal Road, Streetsboro Road, Hines Hill/Boston Mill Road, and Stone Road follow historic road locations and are representative of the road networks that developed along the canal corridor during the period of significance. These routes contribute to the historic character of the canal corridor. An exception is Riverview Road south of Ira Road, where road modifications after the end of the period of significance deviated from the road's historic location and destroyed portions of the canal prism and towpath berm.

Highways

Two major east–west highways, Interstate I-271 and Ohio Turnpike I-80, cross the canal corridor between Boston and Peninsula. In addition, local routes Alexander Road and W Streetsboro Road (State Route 303) pass over the Towpath Trail.

Analysis and Evaluation

The highways were constructed in the mid-twentieth century and do not contribute to the historic character of the landscape. The road systems are a large-scale intervention in the landscape out of scale with the rural circulation routes constructed during the period of significance. Although these highways and roads do not intersect directly with the Towpath Trail, overpasses are visually prominent from the Towpath Trail and impact the historic scene and are representative of the continuum of commercial transportation systems represented within the valley.

Adjacent trail systems

The Towpath Trail intersects with five other trails along its length, including the Old Carriage Trail, Buckeye Trail, Hemlock Creek Trail, Stanford Trail, and Valley Trail. Segments of the Buckeye Trail and Valley Trail follow along the northern end of the Towpath Trail. In addition, the Towpath Trail extends north and south outside of the national park boundary as part of the Ohio & Erie Canalway National Heritage Area.

Within the national park, visitors access the Ohio & Erie Canal Towpath Trail from 14 trailheads, along with informal access from the Village of Everett:

1. Rockside Road/Lock 39
2. Canal Exploration Center
3. Frazee House
4. Fitzwater Road/Alexander (Wilson's) Mill
5. Station Road Bridge
6. Red Lock
7. Stanford House
8. Boston/Lock 32

9. Peninsula/Lock 29
10. Deep Lock/Lock 28 (Metroparks)
11. Hunt House
12. Indigo Lake/Hale Farm
13. Ira Road/Beaver Marsh
14. Botzum

Although the trailheads are located outside of the study area boundary, brief descriptions of the trailheads are included in this chapter to provide context. Trailheads typically consist of a parking area, informational and wayfinding signage, and a short trail or sidewalk connecting to the Ohio & Erie Canal Towpath Trail. Comfort stations, kiosks, picnic tables, benches, and interpretive materials are also incorporated into some trailheads.

Analysis and Evaluation

The majority of the trail systems intersecting with the Ohio & Erie Canal Towpath Trail are outside of the project study area. Portions of the trail systems located within the study area (not along the Towpath Trail) are non-contributing.

Cuyahoga Valley Scenic Railroad

The Cuyahoga Valley Scenic Railroad is a single-track tourist excursion railroad operated by a nonprofit organization in partnership with Cuyahoga Valley National Park. The railroad follows the route of the Cuyahoga Valley Line, which began operation in 1880 between Cleveland and Canton. It is typically located within the valley bottom on the west side of the Cuyahoga River, except for a short segment between Boston and Peninsula that crosses to the east side of an oxbow.

Analysis and Evaluation

Although outside of the study area, the railroad played a critical role in the decline of the Ohio & Erie Canal as a transportation route, replacing the canal as the primary means of trade and transport out of the Cuyahoga Valley. The railroad also influenced the development of towns along the canal, which reoriented primary services and business hubs to the railroad rather than the canal as the latter's economic importance decreased. The railroad contributes to the Valley Railroad Historic District.[31]

[31] National Register of Historic Places, Valley Railroad Historic District, Cuyahoga County, Ohio, National Register #85001123, https://npgallery.nps.gov/AssetDetail/NRIS/85001123.

Overall Study Area Natural Systems, Climate, and Topography

Cuyahoga Valley National Park is located at the intersection of the Glaciated Allegheny Plateau, part of the Appalachian Plateaus physiographic province, and the Huron–Erie Lake Plains and Till Plains sections of the greater Central Lowland, where western remnants of the Appalachian Mountains give way to the midwestern plains. The transition between these two physiographic provinces occurs at the Allegheny escarpment, which runs through the park near Brecksville Station. To the north of the escarpment, the terrain is characterized by upland ridges, narrow valleys, and deep ravines; to the south, major streams carve deep gorges in the low relief glacial lake basin.[32] The primary natural systems and features affecting the study area are the underlying geology and terrain of the Cuyahoga River Valley and the Cuyahoga River and its tributary streams.

The region's climate is strongly influenced by the Great Lakes and is characterized by a range of seasonal variability from warm, humid summers to cold, windy, and snowy winters. The average January temperature is -2.7 degrees C (27.2 degrees F), and the average July temperature is 23.4 degrees C (74.1 degrees F); the park receives an average of 122 cm (48 in) snow annually. The median growing season length is 217 days (from April 9 to November 11).[33]

The average annual temperature for the region is projected to increase 1.5 to 2.0 degrees C by 2050 and 2.0 to 6.5 degrees C by 2100 due to climate change, accompanied by an anticipated 20 to 30% increase in the frequency and amount of precipitation in extreme storm events. The average frost-free season for the Midwest is projected to increase by 20–30 days by 2070–2100, which may increase opportunities for carbon sequestration in plants, but may also increase the growth of undesirable invasive plant species.[34] Due to anticipated temperature changes, visitation is anticipated to increase 7–15% in the shoulder seasons (spring and fall) by mid-century (2041–2060), while decreasing during the peak season (summer), accompanied by an overall 2–4% estimated annual visitation increase.[35] Warming temperatures will also likely alter the composition of vegetation communities in and around Cuyahoga Valley National Park. Habitat suitability for tree species including black maple (*Acer nigrum*), red pine (*Pinus resinosa*), bigtooth aspen (*Populus grandidentata*), and black cherry (*Prunus serotina*) are anticipated to decrease over the next 80 years under a least-change scenario; black ash (*Fraxinus nigra*), quaking aspen (*Populus tremuloides*), and eastern hemlock (*Tsuga canadensis*) may be entirely extirpated from the park.[36]

Geology

The Cuyahoga River Valley has a complex geological history beginning in the Devonian period (roughly 420 to 360 million years ago) with the deposition of sediment in a shallow inland sea that was part of the greater Appalachian basin. Ohio Shale is the oldest bedrock in the park, laid 471 to 460 million years ago, resulting from mixtures of limy sediments, mud, and volcanic ash collected in the basin. Varying sediment sources and hydrologic conditions within the basin resulted in the formation of Bedford Shale, Berea Sandstone, and Cuyahoga Formation during the late Devonian and early Mississippian periods. The youngest bedrock within the park is the Allegheny and Pottsville Group, including the coarse-grained Sharon conglomerate, deposited in a high-energy braided stream environment during the Pennsylvanian period, approximately 265 million years ago (see Figure 3-7). Whatever bedrock was deposited on top of

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[32] T.L. Thornberry-Ehrlich, *Cuyahoga Valley National Park: Geologic Resources Inventory Report*, Natural Resource Report NPS/NRSS/GRD/NRR—2020/2154 (Fort Collins, Colorado: National Park Service, 2020), 3.

[33] S.D. Jones, R. Cook, J. Sovell, M. Ley, H. Pilkington, D. Weinzimmer, P. Smith, and C. Linares, *Natural resource condition assessment: Cuyahoga Valley National Park*, Natural Resource Report NPS/CUVA/NRR—2021/2243 (Fort Collins, Colorado: National Park Service, 2021), 9.

[34] Jones et al., *Natural Resource Condition Assessment*, 65-75.

[35] N.A. Fisichelli, G.W. Schuurman, W.B. Monahan, and P.S. Ziesler, "Cuyahoga Valley National Park: How might future warming alter visitation?" National Park Service, 2015.

[36] N.A. Fisichelli, S.R. Arbella, M. Peters, and F.J. Krist, "Climate, Trees, Pests, and Weeds: Change, Uncertainty, and Biotic Stressors at Cuyahoga Valley National Park," National Park Service, 2015.

the Pottsville Group was worn away by weathering and erosion during the Mesozoic era, approximately 252 to 66 million years ago. During this era, the precursor to the Cuyahoga River developed as a tributary to the now extinct Erigan River, which flowed east–west parallel to the shore of modern Lake Erie.[37]

Beginning approximately two million years ago, glaciers descended in repeated advances from the north, scouring existing landforms and depositing vast amounts of sand, silt, and clay sediments. As each glacial advance obscured evidence of the previous glaciation, the most recent glacial maximum approximately 14,500 years ago is the locally best preserved. The Allegheny escarpment served as an impediment to glacial advance, resulting in linear deposition of sediments as end moraines.[38]

As the glaciers receded, local rivers cut down rapidly through glacial deposits, creating a deeply carved fluvial landscape draining to Lake Erie. Due to the steep, narrow slopes of the Cuyahoga River and its tributaries, slope deposits such as talus and colluvium commonly accumulate at the base of slopes through mass wasting.[39]

Analysis and Evaluation

The underlying geology of the Cuyahoga Valley shaped the narrow valley and floodplain that directed initial settlement of the region by Indigenous peoples and later Euro-American settlers and influenced site selection for the Ohio & Erie Canal. In addition, Berea sandstone was mined from nearby quarries for use in canal structures. The local geology has experienced minimal change since the period of significance and contributes to the historic character of the landscape.

[37] Thornberry-Ehrlich, *Geologic Resources Inventory Report*, 4-10.

[38] Thornberry-Ehrlich, *Geologic Resources Inventory Report*, 11-12.

[39] Thornberry-Ehrlich, *Geologic Resources Inventory Report,* 12.

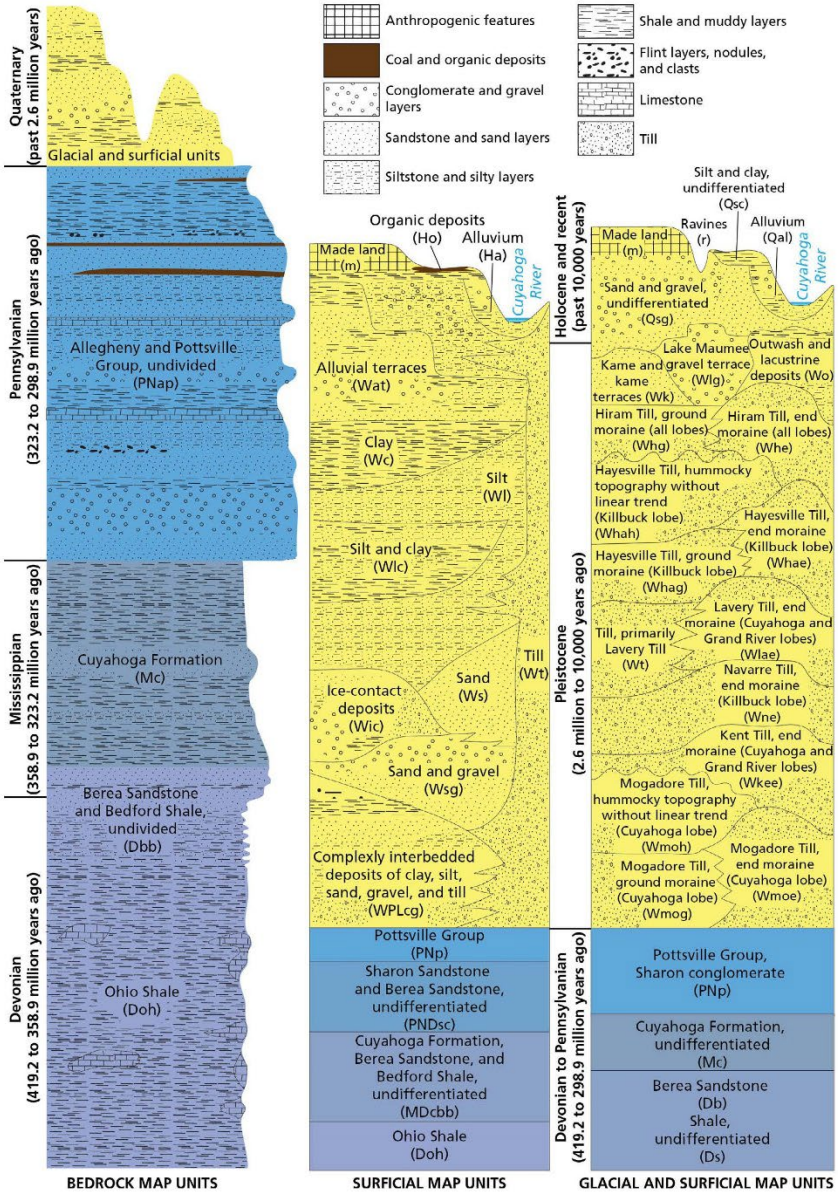


Figure 3-7: Stratigraphic section of Cuyahoga Valley geology (Thornberry-Ehrlich, GRI, 2020).

Hydrology

Although not typically located within the study area boundary, the Cuyahoga River has an important hydrological relationship to the canal prism and towpath berm and is included in the existing condition of the cultural landscape for context.

The Cuyahoga River originates from two sources in Geauga County, Ohio. The east branch starts at a spring near Montville, Ohio, and the west branch starts near Chardon, Ohio. The two branches unite in Burton and meet the Little Cuyahoga River in Akron on the Allegheny Plateau. The Plateau divides the north-flowing and south-flowing watersheds of the Cuyahoga and Tuscawaras Rivers, respectively.[40] The river's name is derived from an Indigenous term referring to its crooked shape due to the dramatic river

[40] Ron Cockrell, *A Green Shrouded Miracle: The Administrative History Cuyahoga Valley National Recreation Area, Ohio* (National Park Service, Midwest Regional Office, 1992), 1.

bend near the city of Cuyahoga Falls.[41] Cuyahoga Valley National Park is located entirely within the Cuyahoga River watershed, and approximately 22 miles of the river flow through the center of the park. In addition, six tributaries converge with the Cuyahoga River within the park boundary: Yellow Creek, Furnace Run, Brandywine Creek, Chippewa Creek, Sagamore Creek, and Tinkers Creek (refer to drawings EC-2 through EC-5, on pages 3.49, 3.61, 3.83, and 3.127, respectively). Additional small tributaries or intermittent streams drain to the river through numerous narrow valleys oriented perpendicular to the floodplain. Although water quality in the Cuyahoga River has historically been poor, it is gradually improving, and most park streams meet State of Ohio warm water habitat standards.[42]

The study area also includes numerous wetlands within the river floodplain. Wetlands are characterized by a variety of vegetation, described in the Overall Study Area Vegetation section of this chapter (see page 3.37).

The Ohio & Erie Canal corridor within the park generally follows the course of the Cuyahoga River between Akron and Cleveland. At the south end of the park, the river drains approximately 284,141 acres. At the north end of the park, the river drains approximately 453,709 acres. The canal corridor is west of the River from the Botzum Trailhead at the south end to Peninsula, where it crosses over the river just south of Boston Run (Sta 1470 to Sta 1125). The canal corridor is east of the river from Peninsula to the north end of the park (Sta 1125 to Sta 450). The watered section of the canal begins at Sta 765 just north of Station Road Bridge Trailhead and extends to the north park boundary (Sta 767 to Sta 450). In total, approximately 127,280 acres drain to the canal prism. The majority of the area, approximately 120,305 acres, drains directly to the river under the towpath berm via large culverts or bridges (refer to Appendix A). Less than 3% of the total drainage area to the river traverses the canal prism and towpath berm via small drainage culverts.

In most areas where the canal prism is visible, drainage comes directly from natural channels or culverts. Drainage from the canal prism must then pass under the towpath berm to the river. Connectivity refers to interference between the canal prism and towpath berm with upstream drainage channels flowing directly to the Cuyahoga River. If a side channel flowing towards the river goes below the canal prism and towpath berm then connectivity is good; if a side channel flows into the canal prism and must go a long distance and/or overflow the canal prism during large storm events to get to the river, then connectivity is poor.

One aqueduct in the watered section remains in use, allowing Tinkers Creek to flow under the Towpath Trail. In the watered section the drainage remains in the canal prism and flows to the north out of the park area, or during large rain events will overflow into the river via overflow spillways.

In the unwatered canal prism section creeks and small streams generally go directly through the canal prism and under the towpath berm to the river. This is typically accomplished with a trail bridge over the creek or stream. Some of the streams will flow into and then within the canal prism before flowing under the Towpath Trail some distance downstream. Most all creeks and small streams have side bank erosion, and some have stream bed erosion. The unwatered section has several marsh areas with raised boardwalks to allow drainage under the towpath. The canal prism is not visible in these areas. The unwatered section also has numerous culverts to take water under the towpath berm to the river. Most of these culverts exhibit bank erosion and some bed erosion within the canal prism both upstream and downstream of the berm. Some of these culverts have a significant amount of silt buildup and do not function properly.

Much of the unwatered canal section retains water due to various blockages such as silt buildup in culverts, lack of drainage facilities, and the existence of beaver dams.

All drainage coming into the canal prism deposits silt and sediment within the prism.

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[41] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 100.

[42] Jones et al., *Natural Resource Condition Assessment*, 10-11.

Analysis and Evaluation

The Cuyahoga River was a determining factor in siting and function of the Ohio & Erie Canal during the period of significance. Although the canal is no longer fed by the Cuyahoga River, the canal corridor retains its critical spatial relationship to the river and associated tributaries and will once again be fed by the river following installation of the pump north of Station Road Bridge in 2022. Hydrologic systems within the study area contribute to the historic significance of the cultural landscape.

Soils

As the study area is almost entirely within the floodplain of the Cuyahoga River, most soils are silt loam alluvium or outwash. Holly silt loam and Chagrin silt loam occur commonly along the entire canal corridor; both are deep, frequently flooded alkaline soils. Fitchville silt loam, Chili loam, Glenford silt loam, Sebring silt loam, Ostemo sandy loam, Tioga variant loam, and Wheeling silt loam occur in smaller amounts along the study area at slightly higher elevations. Steep slopes adjacent to the Towpath Trail are occupied by Conotton-Oshemo complex, Chili gravelly loam, and Brecksville silt loam. Upland soils are typically unstable gravelly sandy loam from outwash, or silt loam residuum weathered from shale.[43]

Analysis and Evaluation

Like the geology of the Cuyahoga Valley, the spatial relationships of its soils were a primary influence on development of the Ohio & Erie Canal as well as surrounding economic and built development in the valley. Small- to medium-sized farms took advantage of the rich silt loam occurring within the Cuyahoga Valley floodplain throughout the period of significance but were subject to the same flooding and erosion issues that plagued the structural integrity of the canal prism and historic towpath. Agriculture continues to be supported by soils within the floodplain today. Upland from the floodplain, steep, unstable soils along the valley walls limited development and agricultural opportunities within the valley. Although these soils constrained economic opportunity during the period of significance, the rural, isolated character of the valley throughout the twentieth century created an "island of green" within rapidly urbanizing northeast Ohio that appealed to recreation and preservation land uses, and today helps to protect the setting of the canal corridor. Soils contribute to the historic character of the landscape.

Topography

The study area sits at the bottom of a deeply incised river valley within the rolling plains of northeastern Ohio. The towpath berm is situated between the river and the canal prism and functions as a levee where the two waterbodies are in close proximity. The towpath berm typically rises 8–14 feet above the river (at least 6 feet above the floodplain), while the canal prism sits 3–15 feet below the elevation of the berm. The Towpath Trail, berm, and canal prism slope gently downhill to the north, with minor deviations from this grade at some road crossings and canal structures. Specific instances are discussed in the Segments and Detail Areas sections in this chapter.

Analysis and Evaluation

The position of the canal corridor within the Cuyahoga River Valley and its gradual slope down to the north (toward Lake Erie) are critical components of the Ohio & Erie Canal's original design that contribute to the historic character of the landscape. Also contributing are the topographic relationships retained between the canal prism and towpath berm, which allow the towpath berm to function as a levee between the prism and the river, and the steep walls of the valley, which have discouraged adjacent development.

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[43] Natural Resource Conservation Service, "Web Soil Survey," US Department of Agriculture, accessed June 2021, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx; and Jones et al., *Natural Resource Condition Assessment*, 10.

Overall Study Area Vegetation

Vegetation communities within or immediately adjacent to the study area are a patchwork of managed lawn, trees, and ornamental plantings; forest; successional meadow, field, or shrubland; emergent or shrub wetland; and agricultural fields. Examples of each type are illustrated in Figures 3-8 through 3-13.

Existing vegetation documentation and analysis builds on a 2013 vegetation mapping inventory project for Cuyahoga Valley National Park, which identified 29 map classes representing 44 natural or semi-natural vegetation associations from the United States National Vegetation Classification (USNVC).[44] Invasive vegetation species are present throughout the study area as indicated in descriptions of associated plant categories. Management of invasive vegetation is addressed by the park's Integrated Pest Management Plan.[45]

The park's Fire Management Plan provides direction for prescribed fire treatment of 33,000 acres within the national park. The Canal Visitor Center, Cuyahoga River Corridor, and Pinery Narrows/Stumpy Basin are identified as specific fire prevention areas.[46]

Forest

Riparian forest is the most common vegetation type along the Ohio & Erie Canal study area, occurring in gently sloping lowlands, floodplains, and flat basins near streams that may occasionally flood (see Figure 3-8). Common tree species within riparian forests include American sycamore (*Platanus occidentalis*), silver maple (*Acer saccharinum*), eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), slippery elm (*Ulmus rubra*), black cherry (*Prunus serotina*), boxelder (*Acer negundo*), red maple (*Acer rubrum*), and black walnut (*Juglans nigra*). Early successional riparian forests contain a greater proportion of tuliptree (*Liriodendron tulipfera*). The understory layers contain flowering dogwood (*Cornus florida*), eastern redbud (*Cercis canadensis*), Ohio buckeye (*Aesculus glabra*), raspberry (*Rubus* spp.), northern spicebush (*Lindera benzoin*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), riverbank grape (*Vitis* spp.), and green ash (*Fraxinus pennsylvanica*), among others. Dense invasive Amur honeysuckle (*Lonicera mackii*), multiflora rose (*Rosa multiflora*), and garlic mustard (*Alliaria petiolate)* encroach on the trail in many locations. This vegetation type corresponds to Cottonwood–Sycamore Floodplain Forest, Silver Maple–Elm Forest, and Successional Floodplain Hardwood Forest classes within the 2013 vegetation survey; rarely, Northern (Great Lakes) Flatwoods also occur along the canal corridor where water is retained year-round.[47]

Northern hardwood forests occupy limited upland areas along the canal corridor (see Figure 3-9). These late-successional closed canopy forests are characterized by oaks (*Quercus rubra, Quercus alba, Quercus velutina,* and *Quercus muehlenbergii*), hickories (*Carya ovata* and *Carya glabra*), sugar maple (*Acer saccharum*), and American beech (*Fagus grandifolia*). Black cherry (*Prunus serotina*), eastern hemlock (*Tsuga canadensis*), pines (*Pinus* spp.) are present in smaller numbers; most pines are planted. The understory includes small trees and shrubs such as flowering dogwood (*Cornus florida*) and American hazelnut (*Corylus americana*) but is dominated by invasive multiflora rose (*Rosa multiflora*) and Amur honeysuckle (*Lonicera mackii*). In disturbed locations where early successional forests have recolonized areas that were previously logged or cultivated, tuliptree (*Liriodendron tulipfera*), red maple (*Acer*

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[44] Kevin Hop, Andrew Strassman, Erin Hoy, Joe Jakusz, and Jennifer Dieck, *National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park, Ohio,* National Resource Inventory Technical Report NPS/HTLN/NRTR 2013/792 (Fort Collins, Colorado: National Park Service, 2013).

[45] National Park Service, *Integrated Pest Management Plan: Cuyahoga Valley National Park, James A. Garfield National Historic Site, and First Ladies National Historic Site* (US Department of the Interior, National Park Service, 2020).

[46] National Park Service, *Cuyahoga Valley National Park Fire Management Plan* (National Park Service, Cuyahoga Valley National Park, 2021).

[47] Hop et al., *National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park*, F-31, F-33, F-34, and F-36.

rubrum), and poplars (*Populus* spp.) are more common. Invasive species of concern include garlic mustard (Alliaria petiolate), multiflora rose (Rosa multiflora), autumn olive (Elaeagnus umbellate), honeysuckle (Lonicera spp.), common reed (Phragmites australis), and cattails (Typha spp.). Treatment of invasive vegetation encroachment along the towpath (particularly small invasive species) is in progress from Station Road to Frazee.

Northern hardwood forests typically occur in upland areas with well-drained soils, for example, along steep slopes in the Pinery Narrows (between Sagamore Creek and Lock 36) or along the south side of the Towpath Trail near Lock 28. Within this CLR, the vegetation type corresponds to two map classes from the 2013 vegetation survey, Dry-Mesic Oak Forest, Beech–Maple Glaciated Forest, and Successional Mixed Hardwood Forest, which intergrade based on topography, soils, and site disturbance.[48]

Successional Meadow, Field, or Shrubland

Along the canal corridor, forests are interspersed by successional herbaceous fields and meadows dominated by a mix of native and exotic grasses and forbs, including Queen Anne's lace (*Daucus carota*), oxeye daisy (*Leucanthemum vulgare*), red clover (*Trifolium pratense*), goldenrod (*Solidago* spp.), and broomsedge bluestem (*Andropogon virginicus*) in upland areas; where flooding is more frequent, there is a greater prevalence of jewelweed (*Impatiens capensis*), wingstem (*Verbesina alternifolia*), Canada thistle (*Cirsium arvense*), and stinging nettle (*Urtica dioica*) (see Figure 3-10). Common grass species include little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), Junegrass (*Koeleria macrantha*), Indiangrass (*Sorghastrum nutans*), redtop (*Agrostis gigantea*), timothy (*Phleum pratense*), and Kentucky bluegrass (*Poa pratensis*). Successional meadows and fields are frequently associated with old farm fields or other clearings no longer actively managed for cultivation. This vegetation type corresponds to the Successional Central Wet-Mesic Herbaceous Field, Successional Dry-Mesic Herbaceous Field, and Successional Grassland Meadow classes in the 2013 vegetation survey.[49]

Successional shrublands occur infrequently along the canal corridor at the interface between forests and fields or meadows. Shrublands are an intermediate successional phase between relatively open spaces dominated by grasses and forbs and young forests. Common species include autumn olive (*Elaeagnus umbellata*), multiflora rose (*Rosa multiflora*), hawthorn species (*Crataegus* spp.), and blackberry species (*Rubus* spp.). Willow (*Salix* spp.) and gray dogwood (*Cornus racemosa*) are typical in wetter areas. This vegetation type corresponds to the Successional Autumn Olive – Hawthorn-Multiflora Rose Shrubland and Mixed Wet Shrubland vegetation classes in the 2013 vegetation survey.[50]

Emergent and Shrub Wetland

Emergent and shrub wetland vegetation occur in riverine wetlands throughout the floodplain of the Cuyahoga River, and in areas where water is retained by the canal prism. Wetland vegetation types within or adjacent to the canal corridor correspond to the reed canarygrass eastern marsh, eastern reed marsh, Midwest cattail deep marsh, and shrub wetland in the park's 2013 vegetation survey.[51]

The watered portion of the canal prism exhibits a vegetation mix characteristic of small wetlands impacted by disturbance. Common species include reed canarygrass (*Phalaris arundinacea*), common reed (*Phragmites australis*), and cattails (*Typha* spp.). Other emergent vegetation including bulrush

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[48] Hop et al., *National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park,* F-18 and F-21.

[49] Hop et al., *National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park*, F-43 through F-45.

[50] Hop et al., *National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park*, F-38 through F-40.

[51] Hop et al., National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park, F-40, F-47, F-49, F-50, F-52, F-53, F-54.

(*Schoenoplectus* spp.), sessilefruit arrowhead (*Sagittaria rigida*), and carex species (*Carex* spp.) may also be present. Early successional multiflora rose (*Rosa multiflora*), honeysuckle (*Lonicera* spp.), and autumn olive (*Eleagnus umbellata*) volunteer in some locations along the edge of the canal prism. This vegetation type corresponds to the Mixed Herbaceous Pond Mosaic vegetation class in the 2013 vegetation survey.[52]

A similar vegetation mix is present where standing water is retained in the unwatered canal prism (see Figure 3-11). In portions of the canal prism with less retained water, there is a greater prevalence of understory shrubs and small trees, particularly multiflora rose (*Rosa multiflora*), honeysuckle (*Lonicera* spp.), and privet (*Ligustrum* spp.); native understory species including dogwood (*Cornus* spp.), eastern redbud (*Cercis canadensis*), Ohio buckeye (*Aesculus glabra*), and small boxelders (*Acer negundo*) and black cherries (*Prunus serotina*) grow along the prism edges. Skunk cabbage (*Symplocarpus foetidus*), honewort (*Cryptotaenia canadensis*), jewelweed (*Impatiens capensis*), and numerous other herbaceous species occur in periodically wet areas within the canal prism.

The Beaver Marsh is characterized by multiple wetland types. A water-lily aquatic wetland including American white waterlily (*Nymphaea odorata),* yellow pond-lily *(Nuphar advena)*, and smaller amounts of common duckweed (*Lemna minor)* and Eurasian watermilfoil (*Myriophyllum spicatum*) occupies open water areas north of Lock 26 (see Figure 3-12).[53] Mixed wet shrublands dominated by northern buttonbush (*Cephalanthus occidentalis*) with lesser quantities of willow (*Salix* spp.) and dogwood (*Cornus* spp.) and floodplain forests extend from the Towpath Trail to the river.[54]

Agricultural Field

Agricultural fields are visible from the canal corridor near Everett and Hunt House. Many of the fields near the Towpath Trail are managed by Szalay's Sweet Corn Farm and Market and are cultivated with row crops. At the north end of the study area, Oxbow Orchard's crop fields, orchard, and livestock pastures are located east of the canal corridor just north of the Canal Exploration Center.

Managed Lawn, Trees, and Ornamental Plantings

NPS maintains a mown edge along the length of the Towpath Trail. The park's mow plan indicates that a 4-foot buffer is to be maintained along the trail, with encroaching vegetation trimmed to maintain a 10-foot open corridor. Mowing and trimming are maintained around all site elements at locks to ensure a safe walkway for visitors.[55] Managed lawn and canopy trees also support visitor use and programming at the trailheads, interpretive nodes, visitor centers, and other interpreted features (see Figure 3-13).[56] Remnant domestic ornamental plantings are located near the Ira Trailhead.

Analysis and Evaluation

Vegetation patterns along the canal corridor have changed since Euro-American settlers began to populate the valley over 200 years ago. Within the northern six miles of the study area (the watered section of the canal), vegetation is most representative of the later years of the period of significance. Vegetation along the southern (unwatered) end of the canal corridor no longer resembles the conditions necessary for the functional canal.

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[52] Hop et al., *National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park*, F-38 through F-54.

[53] Hop et al., *National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park*, F-52.

[54] Hop et al., *National Park Service Vegetation Inventory Mapping Program: Cuyahoga Valley National Park*, F-40.

[55] National Park Service, *Mowing Plan and Reference Guide* (National Park Service, Cuyahoga Valley National Park, Maintenance Division, Draft 2021), 13.

[56] Landscape condition at the Canal Exploration Center, Boston, and Peninsula are addressed in the detail areas sections of this chapter.

To facilitate construction of the canal, contractors grubbed a 60-foot-wide swath along the canal alignment from the old growth forests within the valley. Canal construction and associated economic growth spurred clearing forests for construction materials and to expand agriculture and industry into arable and buildable locations near the bottom of the valley.[57]

Second-growth forests rebounded later in the period of significance. Historic photographs document relatively young riparian forest or early successional meadows and fields along the canal, with emergent wetland vegetation along the edges of the canal prism. Early successional forests had begun to colonize steep slopes and unstable soils in upland areas, such as Pinery Narrows. Critically, large, woody vegetation was absent between the canal prism and Towpath Trail to allow boats to be towed by mules along the canal.

Overall, the northern six miles of the canal corridor (refer to Segments 6 and 7, from Station Road Bridge to Rockside Road) is largely consistent with this character, and the overall pattern of vegetation in this segment of the canal corridor contributes to the historic character of the cultural landscape. Notable changes since the end of the period of significance are continued maturation of forests over the past century and extensive growth of invasive shrub species which now frequently encroach on the Towpath Trail. Loss of water within the canal prism following removal of the Brecksville Diversion Dam has also expanded opportunities for vegetative growth within the canal prism.

Vegetation in the southern 16 miles of the canal corridor is no longer consistent with the period of significance (refer to Segments 1 through 5, Botzum Trailhead through Station Road Bridge). Woody vegetation is frequently present within and along the edges of the canal prism and within some of the locks, blocking the open connection between the prism and Towpath Trail. The character of the vegetation is most similar to the period of significance where water is retained in the prism, reducing the prevalence of woody invasives.

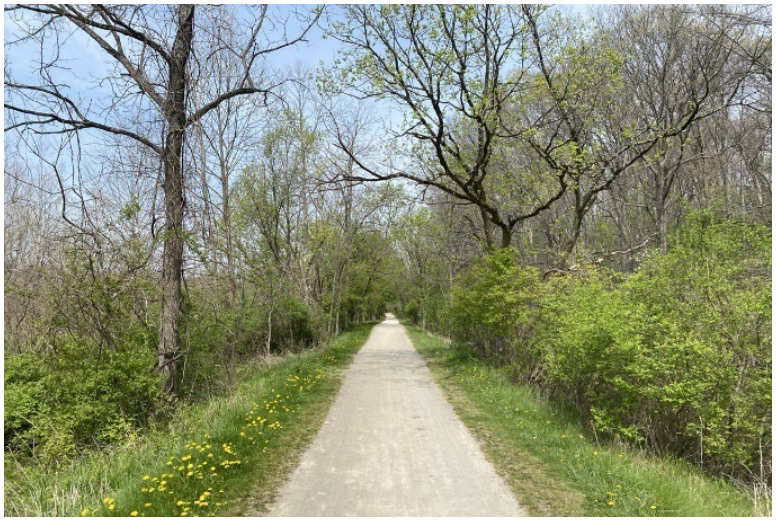


Figure 3-8: Riparian forest with dense invasive understory vegetation at mile marker 18 (QE, 2021).

[57] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 69.



Figure 3-9: Northern hardwood forest on east side of the canal prism at Pinery Narrows (QE, 2021).



Figure 3-10: Successional meadow or field along both sides of the Towpath Trail north of Boston (QE, 2021).



Figure 3-11: Wetland created by retained water within the canal prism between mile markers 18 and 19 (QE, 2021).



Figure 3-12: Beaver Marsh wetland (QE, 2021).

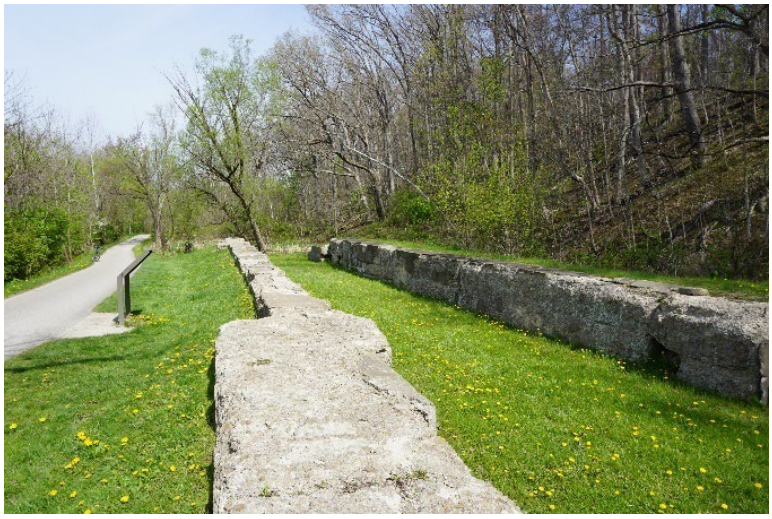


Figure 3-13: Managed lawn around and within Lock 35 (QE, 2021).

Overall Study Area Archeological Sites

Archeological investigations have been conducted within the park landscape since the early nineteenth century. Due to the narrow boundary of the study area, few of the park's hundreds of archeological sites fall within the canal corridor. There are no above-ground features associated with these archeological sites along the Towpath Trail. Location information is omitted from the descriptions below to protect archeological sites.

Early archeology was primarily focused on precontact Indigenous use of the valley as Euro-American settlers recognized the extensive remains of previous settlements and funerary complexes within the landscape. The most visible and therefore most frequently recorded sites were burial mounds and other earthworks; therefore, nineteenth- and early twentieth-century investigations focused on "archeology of the dead." Although several sites were accidentally located during canal construction from 1825–1827, the first systemic archeological investigations date to 1836–1850, when Squier and Davis and later Col. Charles Whittlesey described mounds, villages, and earthen fortifications constructed by Indigenous peoples between Cleveland and Akron. In the 1930s, archeological investigations shifted to a focus on "archeology of the living," particularly Indigenous village sites. In the time since their discovery, many

early archeological sites within the canal corridor have been impacted by agricultural plows, construction activities, and artifact hunters.[58]

Archeological investigations in northeast Ohio grew at an exponential rate beginning in the 1960s with the expansion of research programs through regional universities, the Cleveland Museum of Natural History, the Midwest Archeological Center, and private firms. Most of the investigations completed since that time have been the result of cultural resource management (CRM) studies. CRM projects derive from requirements in protective legislation concerning the impact of federally funded projects such as the National Historic Preservation Act of 1966 and the National Environmental Policy Act of 1970. In addition to precontact Indigenous sites, modern archeological investigations have focused on resources associated with early Euro-American settlement and canal development.[59] The most extensive investigations within the study area were conducted in 1987–1990 ahead of Towpath Trail construction, which in total identified 4 precontact and 14 canal-related sites.[60] The primary threat to archeological sites along the canal corridor is erosion, particularly for resources located near the Cuyahoga River.

Precontact Sites

Archeological sites related to precontact Indigenous occupation and use along the canal corridor are typically small village sites evidenced by chert debitage and pottery sherds. Seven sites are recorded along the corridor: three at the northern end of the canal, one site near the Ira Trailhead, and three sites near the Botzum Trailhead.[61]

Ohio & Erie Canal and Euro-American Settlement Sites

Fourteen canal-related sites were identified along the length of the canal corridor during the 1987–1990 field investigations. At least eight of the sites record the location of former buildings, which were frequently represented by collapsed foundations, remnants of support buildings or structures, and associated deposits. Other sites are limited to scattered debris related to 1800s residential and agricultural use. Perhaps the most significant find during the 1987-1990 archeological investigations was the hull of a canal boat within Stumpy Basin; the presence of one boat suggests that there may be others preserved in the vicinity.[62] Additional studies have been conducted at the Lock Tender's House and environs (1987, 1995), Everett Village and the Martha E. Hunt House and Duncan House (1985, 1993, 2011), Boston Village and the Boston General Store (1991, 1993), and Jaite Mill.[63]

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[58] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 94-95.

[59] Fred A. Finney, *Calumet, Canal, and Cuyahoga: An Archaeological Overview and Assessment of the Cuyahoga Valley National Park, Ohio* (Lincoln, Nebraska: National Park Service, Midwest Archeological Center, Purchase Order PX611598078, 2002), 71-75.

[60] Vergil E. Noble, *Final Report on a Phased Archeological Survey along the Ohio & Erie Canal Towpath in Cuyahoga Valley NRA, Summit and Cuyahoga Counties, Ohio* (Lincoln, Nebraska: National Park Service, Midwest Archeological Center, Technical Report No. 13, 1992).

[61] Noble, *Final Report on a Phased Archeological Survey along the Ohio & Erie Canal Towpath in Cuyahoga Valley NRA*; and Finney, *Calumet, Canal, and Cuyahoga,* 57-67.

[62] Noble, *Final Report on a Phased Archeological Survey along the Ohio & Erie Canal Towpath in Cuyahoga Valley NRA*.

[63] National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory*, 95;Jeffrey J. Richner and Ann C. Bauermeister, *An Archeological Inventory and Assessment of 14 Archeological Sites in the Everett Area, Boston Township, Summit County, Ohio* (Lincoln, Nebraska: National Park Service, Midwest Archeological Center, Technical Report 113, 2011); Jeffrey J. Richner, *Archeological Investigations at Boston Village, Boston Township, Summit County, Ohio, Part I: Inventory and Evaluation at the Boston General Store, 1991* (Lincoln, Nebraska: National Park Service, Midwest Archeological Center, Technical Report No. 53, 1996); and Jeffrey J. Richner, *Archeological Investigations at Boston Village, Boston Township, Summit County, Ohio, Part II: Inventory and Evaluation of the Grounds Surrounding the Boston General Store, 1993* (Lincoln, Nebraska: National Park Service, Midwest Archeological Center, Technical Report No. 54, 1997).

Analysis and Evaluation

Previous surveys have not evaluated archeological sites within the canal corridor for National Register eligibility. Archeological sites related to the Ohio & Erie Canal contribute to the cultural landscape. The canal corridor has potential to continue to yield additional important information related to the significance of the study area.

Overall Study Area Small-Scale Features

Small-scale features within the park are primarily modern additions supporting interpretation, wayfinding, and site operations.

Interpretation is provided by waysides, audio tour kiosks, and site-specific sculptures and exhibits (see Figure 3-14). Along the trail, 36 interpretive nodes share information on each of the locks and other canal features, canal-related buildings and land use, archeological sites, and natural resources.

Trail signs and mile markers assist wayfinding along the trail. Trail signs are typically small, routed wood panels attached to 4” x 4” brown painted wood posts (see Figure 3-15). At road crossings, trail signs are paired with small stop signs, metal stop signs attached to 4” x 4” wood posts, and removable wood bollards allowing for vehicle access to the trail (see Figure 3-16).

Short, engraved stone mile marker posts are located along the Towpath Trail at intervals of one nautical mile measured along the trail (see Figure 3-17).

Several styles of fences and guardrails are employed sparingly between the trail and roads, steep drop-offs, along private property boundaries, and the Cuyahoga River edge (see Figure 3-18 through 3-20). Board fences are typically installed and maintained by NPS, while timber guardrails are located within the road right-of-way and are designed to meet County road standards.

Benches occupy irregular intervals along the Towpath Trail, with a higher concentration of features near trailheads. The most common bench types along the trail are constructed of rough quarried limestone blocks supporting simple wood plank seating (see Figure 3-21). Near the Canal Exploration Center and (other location), seating is simplified to quarried limestone blocks (see Figure 3-22). Wood benches are installed along boardwalks.

Analysis and Evaluation

All small-scale features within the study area are modern, non-contributing additions. The features are generously spaced to serve functional visitor needs and do not impact the historic integrity of the canal corridor. Although no small-scale features are retained from the period of significance, overhead electrical lines and wood board fences visible along Canal Road in the northern end of the study area are consistent with the landscape character in the later part of the period of significance.



Figure 3-14: Interpretive node along the Towpath Trail at Hunt House including audio tour kiosk, character sculptures, and wayside (QE, 2021).



Figure 3-15: Typical routed wood trail sign (QE, 2021).



Figure 3-16: Road crossing signs and bollard south of Fitzwater Road, facing toward road (QE, 2021).



Figure 3-17: Typical stone mile marker (QE, 2021).



Figure 3-18: Wood guardrail along Riverview Road near Lock 26 (QE, 2021).



Figure 3- 19: Painted wood board fence north of Alexander/Wilson's Mill (QE, 2021).



Figure 3-20: Unpainted three-board wood fence between Towpath Trail and Cuyahoga River north of Peninsula (QE, 2021).



Figure 3- 21: Limestone and wood bench near Lock 36 (QE, 2021).



Figure 3-22: Limestone block seating south of Canal Exploration Center (QE, 2021).

Overall Study Area Existing Condition by Segment

This section presents a description of existing landscape condition of seven segments along the length of the 22-mile-long study area.

Segment 1: Unwatered Canal from Ira Road to Botzum Trailhead

Segment 1 is at the southern end of the study area, from the southern boundary of Cuyahoga Valley National Park near Botzum Trailhead (Sta 1480) to Ira Road (Sta 1387). Within this 1.8-mile segment, the canal prism is no longer visible and the Ohio & Erie Canal Towpath Trail does not follow the historic route of the towpath. The trail is situated between the Cuyahoga Valley Scenic Railroad to the west and Riverview Road to the east. The Cuyahoga River floodplain extends east of Riverview Road. Figure 3-23 illustrates a typical cross-section of the railroad, trail, Riverview Road, and floodplain.

Visitors access Segment 1 from Botzum Trailhead at the southern end of the segment, or Ira Trailhead to the north. In addition, there is a Cuyahoga Valley Scenic Railroad Station at Botzum Trailhead. South of Botzum Trailhead, the Towpath Trail extends out of the park and proceeds along the Cuyahoga River toward Akron.

Existing condition of Segment 1: unwatered canal from Ira to Botzum Trailhead is illustrated on Drawing EC-2 (see page 3.49).

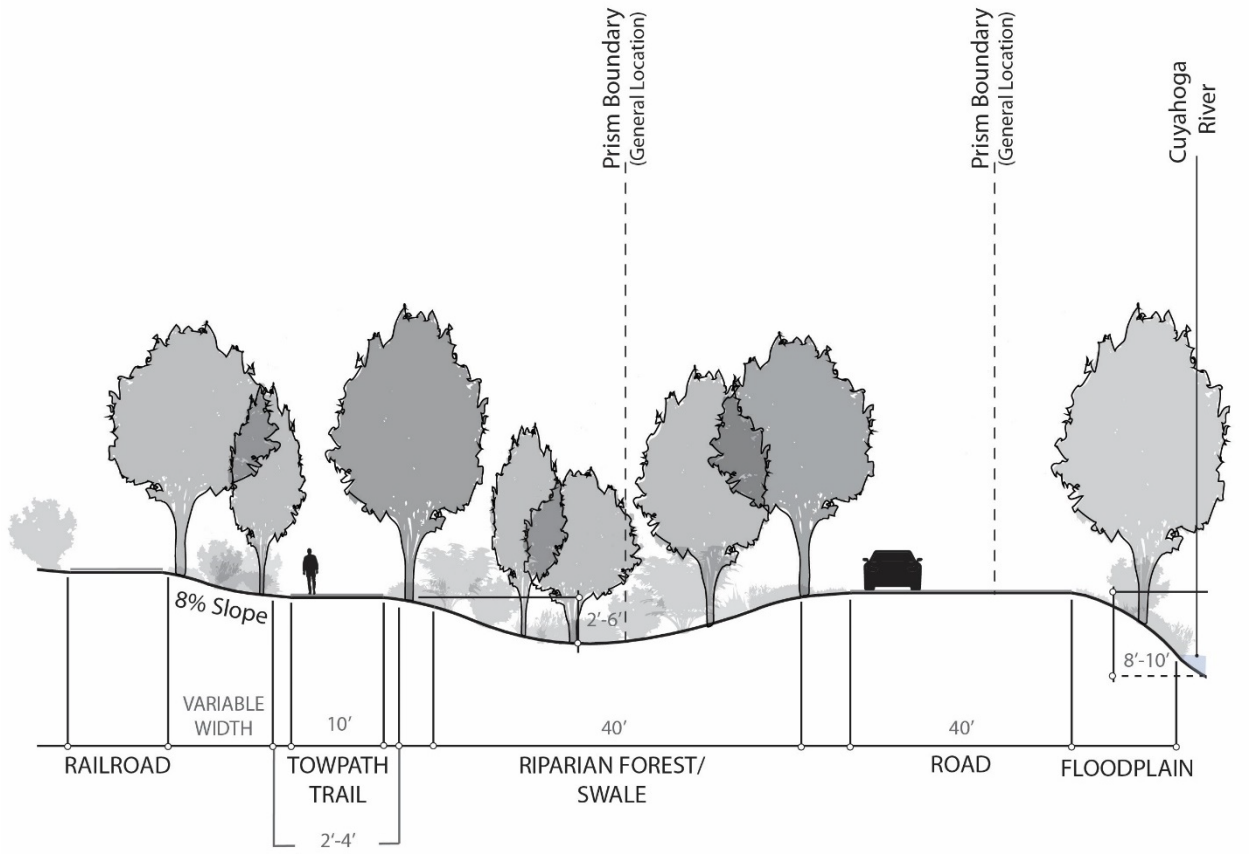


Figure 3-23: Typical cross-section of canal corridor in Segment 1.

Segment 1 Circulation

Towpath Trail

The Ohio & Erie Canal Towpath Trail is located west of the historic towpath berm location; its original route and the towpath berm were destroyed by the construction of Riverview Road. No visual cues differentiate this portion of the trail, which does not follow the historic route, from trail segments that follow the original towpath route. The trail is 10 feet wide with a 2- to 4-foot shoulder and is paved with chip seal, which has a visually similar appearance to limestone fines (see Figures 3-24 and 3-25). The pavement was recently installed and is in good condition.



Figure 3-24: Typical view of Riverview Road, Towpath Trail, and railroad in Segment 1 (QE, 2021).



Figure 3-25: Chip seal trail surface at mile marker 29 (QE, 2021).

Road and Trail Connections

Primary access to this segment is from Botzum Trailhead and from the trail south of the park. The trailhead includes a large asphalt-paved parking area, a comfort station, picnic areas, benches, and two information kiosks. A Cuyahoga Valley Scenic Railroad station is located northwest of the trailhead and is connected to the Towpath Trail by a connector trail north of the trailhead. Parking was also observed in a small gravel-paved utility easement west of the trail on the north side of Bath Road (see Figure 3-26).

Within this segment, the Towpath Trail crosses Ira Road, Bath Road, Riverview Road, and the Botzum Farmstead entrance drive (see Figure 3-27 and Figure 3-28). All road crossings incorporate standard NPS road crossing features, including trail signs, small stop signs, metal stop signs attached to 4” x 4” wood posts, and removable wood bollards.



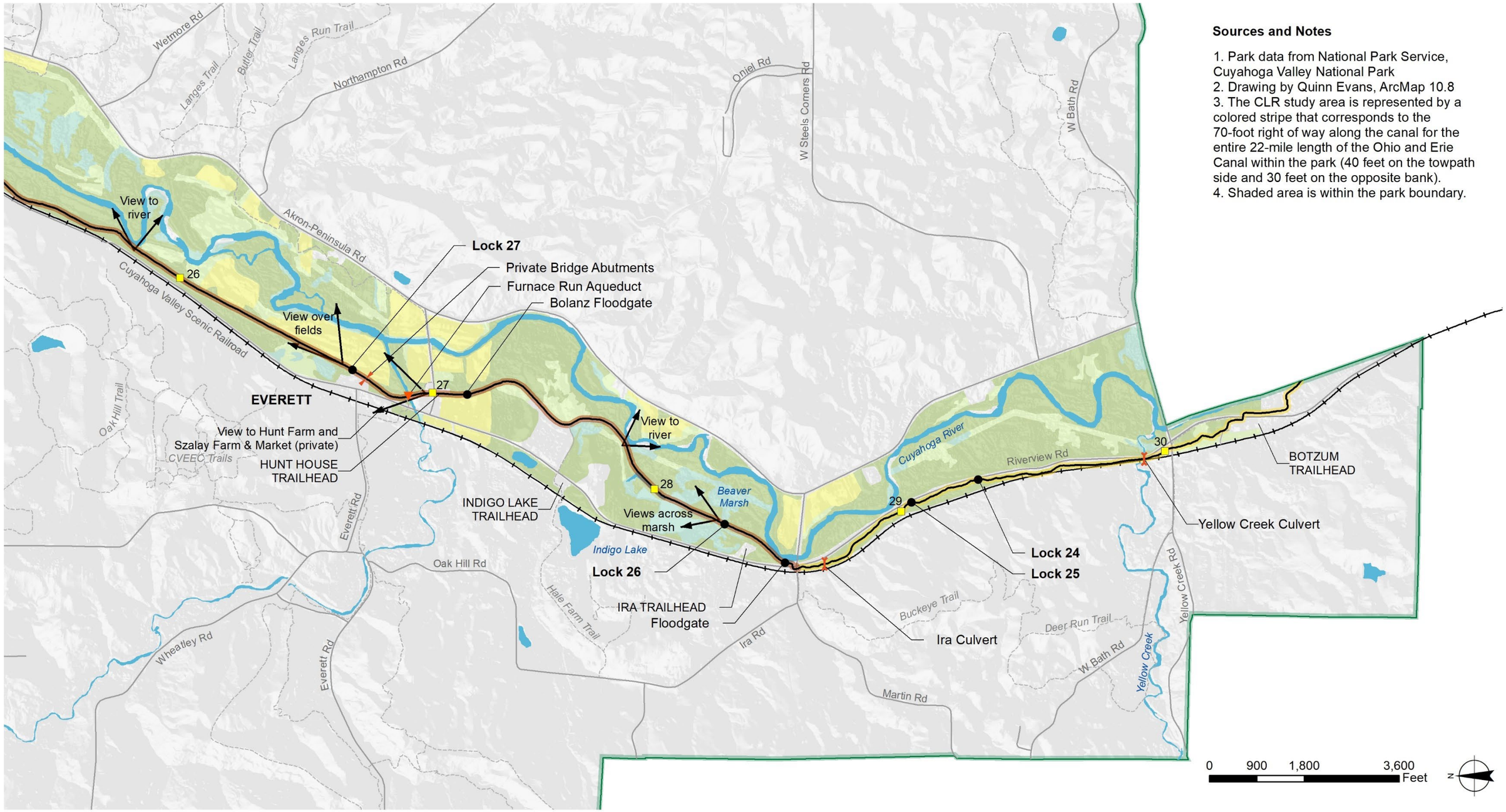
Figure 3-26: Parking in gravel-paved utility easement west of Towpath Trail on north side of Bath Road (QE, 2021).



Figure 3-27: Towpath Trail crossing at Bath Road, looking south (QE, 2021).



3-28: Towpath Trail crossing Ira Road at the intersection with Riverview Road, looking south (QE, 2021).



Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.

Legend

Boundaries
- Study area: Segment 1
- Study area: Segment 2
- CVNP Boundary

Natural Systems
- River, Stream, or Pond

Buildings and Structures
- Lock, Waste Structure, or Feeder
- Aqueduct
- Culvert
- Bridge Abutment

Small-Scale Features
- Mile Marker (Nautical)

Circulation
- Ohio and Erie Canal Towpath Trail
- Trail outside study area
- Local Connecting Road
- Railroad

Views
- View

Vegetation
- Wetland
- Forest
- Agriculture
- Successional Meadow, Field, or Shrubland

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Segment 1 and Segment 2 Existing Condition

October 2022

Segment 1 Vegetation

The trail winds through a riparian forest including sycamore (*Platanus occidentalis*), cottonwood (*Populus deltoides*), black cherry (*Prunus serotina*), boxelder (*Acer negundo*), American beech (*Fagus grandifolia*), elms (*Ulmus* species), oaks (*Quercus* species), musclewood (*Carpinus caroliniana*), and Ohio buckeye (*Aesculus glabra*) (see Figure 3-29). There is significant vernal pool habitat within the broader floodplain system in this segment, creating opportunities for wood frog breeding. Invasive garlic mustard (*Alliaria petiolate*), multiflora rose (*Rosa multiflora*), autumn olive (*Elaeagnus umbellate*), and honeysuckle (*Lonicera* species) are common in the understory. A small wetland between the trail and railroad north of mile marker 29 features skunk cabbage (*Symplocarpus foetidus),* cattails (*Typha* species), and sedges (*Cyperaceae* species) (see Figure 3-30). On the west side of the parking area is an early successional shrubland dominated by multiflora rose, goldenrod (*Solidago*), and raspberry (*Rubus occidentalis*), with common reed (*Phragmites australis*) in wet areas.



Figure 3-29: Forest along trail north of Bath Road (QE, 2021).



Figure 3-30: Wetland north of mile marker 29 (QE, 2021).

Segment 1 Buildings and Structures

Concrete and Stone Canal Structures

Canal structures are addressed in the Overall Study Area Buildings and Structures section of this chapter (see page 3.17). Historic canal structures in Segment 7 include the Ira Culvert, Lock 25 and spillway, Lock 24 and spillway, and Yellow Creek Culvert (see Figure 3-31 through Figure 3-35).

Canal Prism

Construction of Riverview Road destroyed the canal prism between Ira Road and the Boztum Trailhead. A short segment of the prism is intact between the Botzum trailhead and the southern boundary of the park.

Two major tributaries and drainage structures drain under the towpath berm as follows:

- Sta 1456, 19,937 ac—Yellow Creek Culvert
- Sta 1387, 378 ac—Ira Road Culvert

The canal prism is generally indistinguishable within this segment. All drainage to the canal corridor in this segment comes from the west and must go under or over the railroad tracks to reach the canal prism. Approximately 290 acres drain to several small culverts along the canal corridor within this segment (see Figure 3-36).

The river is generally several hundred feet east of the canal corridor within this segment.

A distinct conical topographical feature approximately 15 feet tall is 20 feet east of the trail in a wooded area just north of Botzum Trailhead (see Segment 1 Archeological Sites and Figure 3-37).



Figure 3-31: Ira Culvert (SKDG, 2021).



Figure 3- 32: Lock 25 (west wall) (QE, 2021).



Figure 3-33: Lock 24 spillway (QE, 2021).



Figure 3-34: Lock 24 (QE, 2020).



Figure 3- 35: Yellow Creek Culvert (SKDG, 2020).



Figure 3-36: Modern culvert south of Lock 24 (SKDG, 2021).



Figure 3-37: Conical topographic feature west of Towpath Trail near Botzum Trailhead. See Segment 1 Archeological Sites section for more information (QE, 2021).

Segment 1 Views

Riverview Road and the Cuyahoga Valley Scenic Railroad are prominent in views throughout this segment (see Figure 3-38). Short segments of the trail are visually buffered from adjacent circulation routes by the forest (see Figure 3-24).



Figure 3-38: Prominent view of Riverview Road from Lock 25 (QE, 2021).

Segment 1 Small-Scale Features

Waysides interpret the remnants of Lock Nos. 24 and 25. Trail signs support wayfinding throughout the segment, and a park entrance sign at the intersection of Bath Road and Riverview Road welcomes visitors to the park. Where the trail passes close to the railroad or Riverview Road, wood fences or timber guardrails provide protection to pedestrians and cyclists.

Segment 1 Archeological Sites

A distinct conical topographical feature approximately 15 feet tall is 20 feet east of the trail in a wooded area just north of Botzum Trailhead (see Figure 3-37). The site is known as Botzum Mound or Big Dog Mound; during the 19th century, a milk house associated with the Schoonover farm was cut into its side. Archeological investigations have identified the topography as a natural feature and have also identified artifacts associated with American Indian and early Euro-American activities.[64]

[64] Finney, *Calumet, Canal, and Cuyahoga*, 188-189.

Segment 1 Analysis and Evaluation

Segment 1 no longer conveys the historic character of the Ohio & Erie Canal cultural landscape. The towpath berm and canal prism were destroyed during the widening and realignment of Riverview Road in the 1930s and are no longer discernable in the landscape. The existing trail, while roughly parallel to the original towpath, does not follow the historic route. Due to the loss of the prism and towpath berm, the trail's relationship to the existing vegetation and natural systems is also disconnected from the historic condition. Ruins of several canal structures are retained along the segment, but visitors experience these features out of context from the canal prism and historic towpath.

Segment 2: Unwatered Canal from Ira Road to Peninsula (Lock 29)

Segment 2 extends from Ira Road (Sta 1387) to Lock 29 (Sta 1123) at Peninsula. In the Ohio History Inventory, this segment corresponds to SUM-3260-07 and SUM-3259-04. Peninsula is described in detail in a separate section in this chapter (see page 3.210).

Within this 4.1-mile segment of the study area, the Towpath Trail is on a well-defined berm east of the canal prism. The Cuyahoga River is east of the Towpath Trail, accompanied by a low floodplain of irregular width between the berm and the river. The Cuyahoga Valley Scenic Railroad runs just west of the canal prism. Figure 3-39 illustrates a typical cross-section of the Towpath Trail, canal prism, and floodplain (also see Figure 3-40).

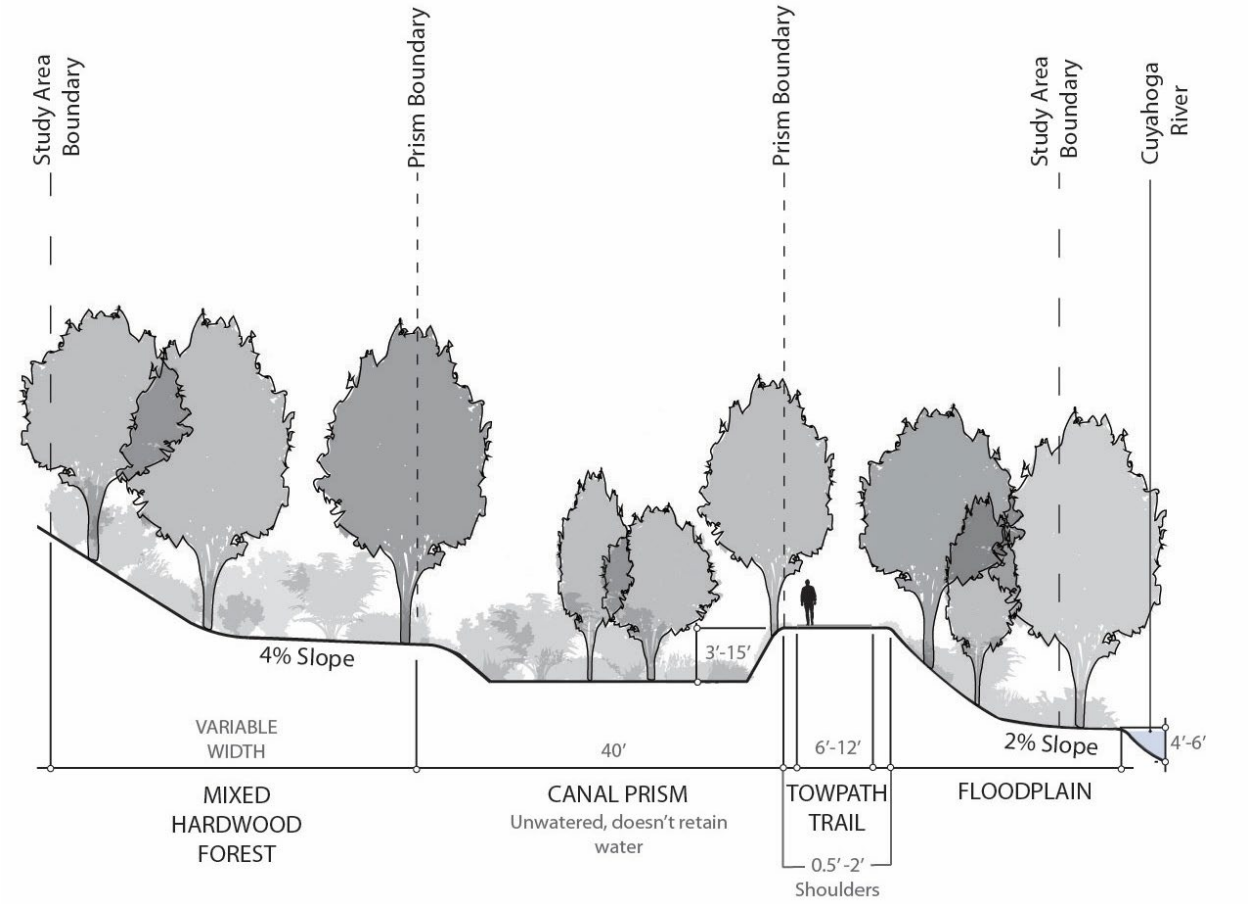


Figure 3-39: Typical cross-section of canal corridor in Segment 2. The Cuyahoga Valley Scenic Railroad is west of Towpath Trail north of mile marker 26.

Segment 2 connects through several clusters of development, including the village of Everett, the privately-owned Szalay Farm Market, Hunt House Trailhead, and a mobile home neighborhood. It also includes the Beaver Marsh, a large, high-priority natural resource wetland located north of Lock 26. The Beaver Marsh and Lock 26 are beloved by visitors for diverse wildlife viewing. Visitors access this portion of the Towpath Trail from five trailheads: Peninsula, Deep Lock Quarry Metro Park (managed by Summit Metro Parks), Hunt House Trailhead, Indigo Lake Trailhead, and Ira Road Trailhead. The Peninsula and Indigo Lake trailheads include Cuyahoga Valley Scenic Railroad stations.

Existing condition of Segment 2: unwatered canal from Peninsula (Lock 29) to Ira Road is illustrated on Drawing EC-3 (see page 3.61).



Figure 3-40: Typical view of canal prism, Towpath Trail, and berm along Segment 2 (QE, 2021).

Segment 2 Circulation

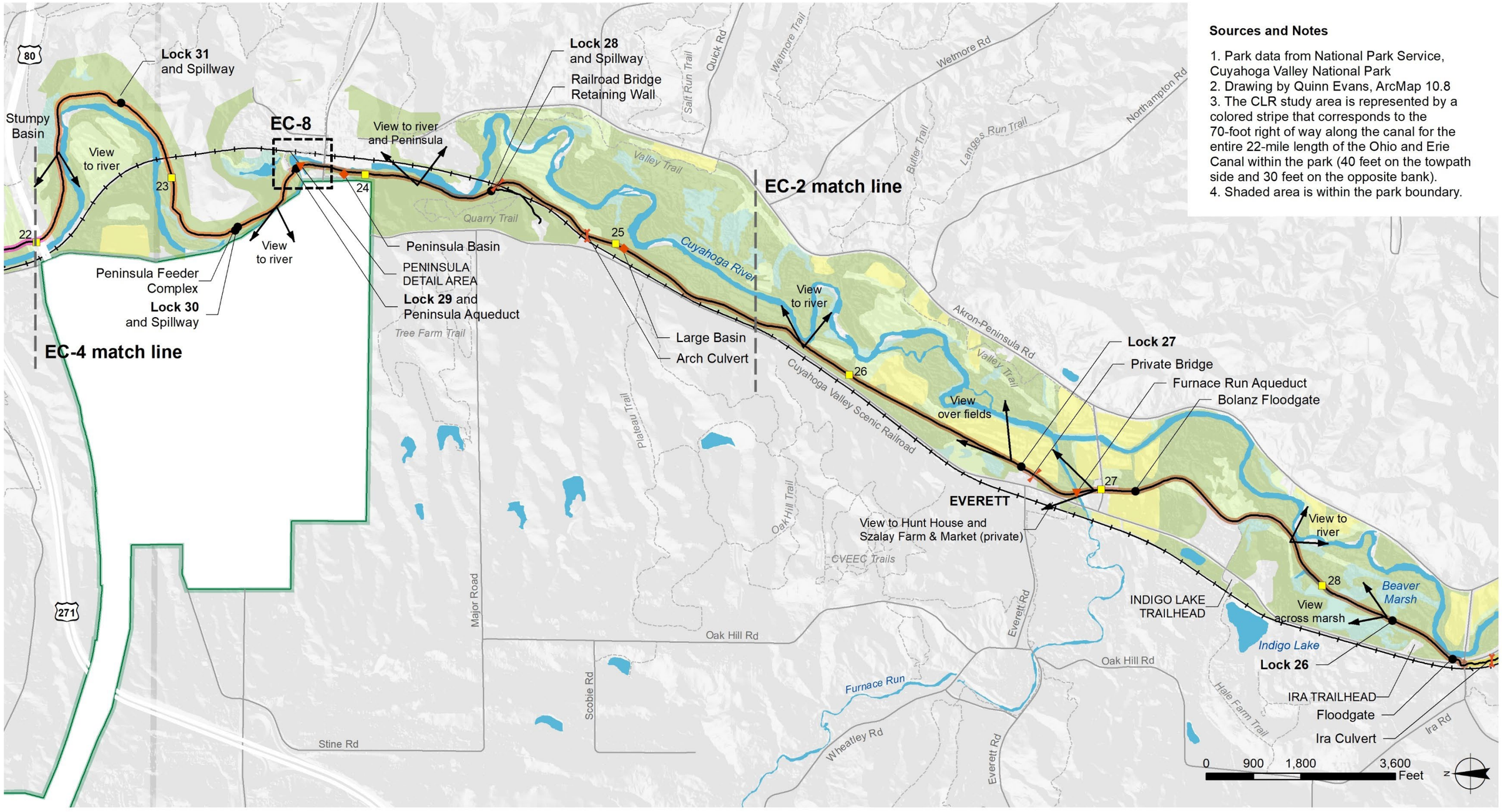
Towpath Trail

The existing Towpath Trail is located on the original towpath berm for the length of Segment 2 except for Beaver Marsh, where the trail transitions to a boardwalk.

Most of the trail in Segment 2 is paved with limestone fines. The width of the trail varies widely from 6 to 12 feet, with the widest locations typically occurring near interpretive nodes or high use areas. The limestone fines surface is overall in fair condition. During April 2021 field investigations, significant rutting was noted near Everett, although erosion is present throughout the length of the segment (see Figure 3-41). Due to the gradual widening of the limestone fines surface with use, mown trail shoulders are narrow (6 inches to 2 feet). Chip seal is implemented at the extreme southern end of the segment. It is in good condition and blends visually with the limestone fines.

Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.



Legend

Boundaries
- Study area: Segment 2
- Study area: Segment 3
- CVNP Boundary
- Detail Area

Natural Systems
- River, Stream, or Pond

Buildings and Structures
- Lock, Waste Structure, or Feeder
- Aqueduct
- Culvert
- Bridge Abutment
- Basin

Circulation
- Ohio and Erie Canal Towpath Trail
- Trail outside study area
- Local Connecting Road
- Highway
- Railroad

Vegetation
- Wetland
- Forest
- Agriculture
- Successional Meadow, Field, or Shrubland

Small-Scale Features
- Mile Marker (Nautical)

Views
- View

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Segment 2 and Segment 3
Existing Condition

October 2022

A short segment of trail north of Hunt House is paved with asphalt. The change in pavement is associated with the Towpath Trail's intersection with a bridle trail. The asphalt surface is 8 feet wide and exhibits linear rutting; it is in fair to poor condition (see Figure 3-42).

A 10-foot-wide wood boardwalk extends approximately 500 feet across the Beaver Marsh (see Figure 3-43). It sits on concrete pilings and has wood railings with three horizontal metal robs. Two bump-outs near the north end of the walkway provide interpretation and several benches. The boardwalk is in good to fair condition. Loose boards and worn railings are present in several locations.

Modern trail bridge structures with wood railings are installed over six canal structures, including Furnace Run Aqueduct and Bolanz Floodgate (see Figure 3-45).

Road and Trail Connections

The Towpath Trail connects with several other road and trail systems within the length of Segment 2. Gravel service roads extend west from the Towpath Trail south of mile marker 25 and at marker 26, and an asphalt access road connects to the Towpath Trail south of Peninsula (see Figure 3-44 and Figure 3-46). A gravel farm road crosses the trail to provide a connection between Everett and farm fields on the east side of the canal corridor (see Figure 3-47). The Valley Trail intersects with the Towpath Trail at the Furnace Run Aqueduct and follows the alignment of the trail for a short distance before continuing east through the floodplain. Immediately south of the manufactured housing neighborhood, a limestone fines trail extends west to the Indigo Lake Trailhead and Hale Farm & Village. Visitors cross Riverview Road to access the trailhead.

Along this segment, the only road crossing is at Bolanz Road. Riverview Road runs west of Segment 2. Visibility of the road from the Towpath Trail increases south of Everett. The Cuyahoga Valley Scenic Railroad passes over the Towpath Trail south of Lock 28 (see Figure 3-48).

Ira Trailhead is on the west side of Riverview Road and provides visitor access to the Towpath Trail immediately south of Beaver Marsh. The trailhead includes a small asphalt paved parking area, comfort station, information kiosk, and interpretive materials (see Figure 3-49). A chip seal walkway over the canal prism connects the trailhead to the Towpath Trail (see Figure 3-50).

A connector trail extends from the towpath trail to the west, connecting with Indigo Lake Station on the Cuyahoga Valley Scenic Railroad, and continues past the north side of Indigo Lake to the Hale Farm.

The Hunt House Trailhead is east of the Riverview Road and Bolanz Road intersection. A small asphalt-paved parking area, kiosk, and bench are on the south side of Bolanz Road; visitors cross the road to access the historic farm buildings, interpretive materials, and comfort station. Benches, bike racks, and waste receptacles are also provided on the north side of the street. Szalay's Farm Market is immediately west of the Hunt House Trailhead along Bolanz Road.

Deep Lock Quarry Metro Park accesses Lock 28 as well as Deep Lock Quarry at the northern end of Segment 2. The trailhead is owned and managed by Summit Metro Parks and includes a large asphalt-paved parking area, a comfort station, a kiosk, non-NPS interpretive materials, picnic areas, benches, and Summit Metro Parks wayfinding signage.

Although there is no trailhead specifically associated with Everett, visitors may access the trail from the Everett Covered Bridge parking lot and then bike, run or walk to the towpath trail, or to the Valley Trail that crosses closer to Furnace Run.



Figure 3-41: Poor condition limestone fines trail surface near Everett (QE, 2021).



Figure 3-42: Fair to poor condition asphalt surface north of Hunt Farm trailhead (QE, 2021).



Figure 3-43: Beaver Marsh boardwalk (QE, 2021).



Figure 3-44: Modern trail bridge over Furnace Run Aqueduct substructure (QE, 2021).



Figure 3-45: Gravel access road (QE, 2021).



Figure 3- 46: Gravel service road between Towpath Trail and Cuyahoga Valley Railroad (QE, 2021).



Figure 3- 47: Farm road intersection with Towpath Trail at Everett (QE, 2021).



Figure 3- 48: Railroad underpass south of Lock No. 28 (QE, 2021).



Figure 3- 49: Comfort station and small-scale features at Ira Trailhead (QE, 2021).



Figure 3- 50: Chip seal trail connection to Ira Trailhead (QE, 2021).

Segment 2 Vegetation

From Peninsula to Everett, the canal corridor passes through riparian forest dominated by American sycamore (*Platanus occidentalis*), silver maple (*Acer saccharinum*), eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), slippery elm (*Ulmus rubra*), black cherry (*Prunus serotina*), boxelder (*Acer negundo*), and red maple (*Acer rubrum*). At the northern end of the segment, a narrow strip of trees occupies the steep slope between the Cuyahoga River and the towpath berm; among these is a bent American sycamore tree (*Platanus occidentalis*) that may be a historic marker tree (see Figure 3-51). Between Lock 29 and Lock 28, the forest composition shifts to drier species on the steep slope to the west of the prism, including oaks (*Quercus* spp.), hickories (*Carya* spp.), and sugar maple (*Acer saccharum*). Throughout the northern end of the segment, woody shrubs and trees grow within the canal prism. Dense multiflora rose and honeysuckle obscure the shape of the prism in many locations.

Agricultural fields abut the canal corridor near Everett and Hunt House. South of the Hunt House Trailhead, the surrounding vegetation returns to riparian forest species. Overflow from the Beaver Marsh waters the canal prism in this area, resulting in a mix of wetland vegetation, including reed canarygrass, cattails, and small woody shrubs along the prism margins.

Beaver Marsh is a high-quality 70-acre complex of diverse habitats, including aquatic wetlands, floodplain forests, shrub-scrub wetlands, and emergent wetlands formed through beaver damming and volunteer cleanup efforts in the 1980s (see Figure 3-52 and Figure 3-53). Open water areas of the Beaver Marsh are occupied by American white waterlily (*Nymphaea odorata)*, yellow pond-lily *(Nuphar advena)*, and smaller amounts of common duckweed (*Lemna minor)* and Eurasian watermilfoil (*Myriophyllum spicatum*). Significant breeding pool complexes exist in the canal and hydrologically connected areas and are particularly important for spotted salamanders.



Figure 3-51: Unique American sycamore tree north of Lock 28 (QE, 2021).



Figure 3-52: Aquatic wetland (foreground) and shrub-scrub and floodplain forest (background) at Beaver Marsh. Habitat edges are formed by the beaver's network of dams (SKDG, 2021).



Figure 3-53: Beaver dam at north end of Beaver Marsh (QE, 2021).

Segment 2 Buildings and Structures

Concrete and Stone Canal Structures

Canal structures are addressed in the Overall Study Area Buildings and Structures section of this chapter (see page 3.17). Historic canal structures in Segment 2 include:

- Lock 28
- Railroad bridge retaining wall
- Arch culvert
- Lock 27
- Private Bridge
- Furnace Run Aqueduct
- Bolanz Floodgate
- Lock 26
- Floodgate

Photos of select structures are provided in Figures 3-54 through 3-58. Several canal features within Segment 2 were heavily overgrown during April 2021 field investigations, including the railroad bridge retaining wall, arch culvert, and large basin.

Remnants of a small, rectangular concrete block foundation and a dry-laid stone retaining wall are located along the Towpath Trail south of Peninsula (see Figure 3-59).

Four buildings are clustered in a mown clearing at Hunt House: three outbuildings and a house (see Figure 3-61). The buildings are located outside of the canal corridor and do not contribute to its significance. NPS utilizes the buildings as a visitor contact station.

Canal Prism

Within this segment, the prism is visible but filled with woody shrubs and trees. Although not actively watered, tributaries of the Cuyahoga River and runoff are retained within the prism between Ira and the Hunt House Trailhead. The canal prism at the northern end of the segment is typically dry.

The depth of the canal prism varies within Segment 2. The canal is 5 to 8 feet below the elevation of the Towpath Trail for much of its length, becoming shallower south of Peninsula and near mile marker 28, where it reaches a minimum depth of 3 feet. Near Deep Lock, the towpath berm has a dramatic dropoff of 10 to 15 feet to the bottom of the prism.

Basins (Stations 1194+00 and 1197+00)

Two basins were documented south of Lock 28 (Deep Lock) by 1912. Consistent with the condition documented in the 2019 HSA, the southern basin at 1197+00 was not located during April 2021 field investigations. The northern basin is a shallow, densely overgrown depression in the landscape that is difficult to discern from the Towpath Trail.



Figure 3-54: Lock 28 (Deep Lock) (QE, 2021).



Figure 3-55: Lock 27 (Johnny Cake Lock) (QE, 2021).



Figure 3-56: Private bridge at Everett, east abutment (QE, 2021).



Figure 3-57: Bolanz Floodgate (SKDG, 2021).



Figure 3-58: Lock 26 (QE, 2021).



Figure 3-59: Ruin of concrete block foundation and retaining wall south of mile marker 24 (QE, 2021).



Figure 3-60: Modern bridge over stream (SKDG, 2021).



Figure 3-61: The Hunt Farm sits adjacent to the canal corridor, but the property does not contribute to its significance. Hunt Farm consists of four buildings and is used as a NPS contact station (QE, 2021).

Major tributaries and drainage structures through the canal prism are as follows:

- Sta 1355, 315 ac—boardwalk over Beaver Marsh
- Sta 1302, 630 ac—Bolanz Floodgate
- Sta 1290, 12,959 ac—pedestrian bridge over Furnace Run
- Sta 1139, 283 ac—pedestrian bridge over stream
- Sta 1195, 702 ac—new bridge over stream
- Sta 1232, 198 ac—bridge over stream

Except for the Beaver Marsh area, the canal prism is evident within this segment. The prism south of Beaver Marsh has water in it due to backup from the marsh and some areas downstream also have water due to various other conditions creating backup.

From approximately Sta 1350 to Sta 1233 all drainage toward the canal prism in this segment comes from the west and goes under the railroad tracks, then under Riverview Road via culverts, then to the canal prism and eventually under the towpath berm. Approximately 300 acres drain to several small culverts along the canal corridor within this segment. Due to drainage from the roadway culvert to the canal prism and under the towpath berm, erosion is occurring within the prism in this area (see Figure 3-62).

The River is encroaching on the canal corridor towards the south side of Peninsula and to the south (see Figure 3-63).

From Sta 1233 to Peninsula drainage generally comes down the hillside from the west directly to the canal prism. No small culverts were found within this length. Several small culverts were located at the south side of Peninsula from Sta 1140 to Sta 1110 (see Figure 3-64 and Figure 3-65). Connectivity is fairly good through this area.



Figure 3-62: Erosion in canal prism north of Beaver Marsh (SKDG, 2021).



Figure 3-63: Cuyahoga River encroachment on the Towpath Trail north of Lock 28 (SKDG, 2021).



Figure 3-64: Corrugated metal pipe culverts under Towpath Trail south of Peninsula (SKDG, 2021).



Figure 3-65: Culvert with concrete headwall south of Peninsula (SKDG, 2021).

Segment 2 Views

Riparian forests enclose views to the canal corridor along much of Segment 2. In the southern end of the segment, visitors experience periodic open views over the landscape where the vegetation changes to agricultural fields or wetlands. There are also dramatic views over the Cuyahoga River, where the trail abuts the river, particularly between Lock 29 and Lock 28 (see Figure 3-66).

Nearby buildings and structures are also visible from the Towpath Trail. Houses peek through the vegetation across the river in Peninsula (see Figure 3-67). The town of Everett and Szalay Farm are visible near the center of the segment (see Figure 3-68 and Figure 3-69), along with a manufactured housing development to the south. The Brown-Bender Farm can also be seen during leaf-off from a location between the floodgate and Lock 26.



Figure 3-66: View of Cuyahoga River and Cuyahoga Valley Scenic Railroad bridge near Deep Lock (QE, 2021).



Figure 3-67: Houses in Peninsula visible across Cuyahoga River near mile marker 24. Visibility of these structures from the Towpath Trail is reduced during leaf-on (QE, 2021).



Figure 3-68: View of Szalay Farm & Market from Towpath Trail (QE, 2021).



Figure 3-69: View of buildings in the village of Everett from Lock 27 (QE, 2021).

Segment 2 Small-Scale Features

Waysides and interpretive features in Segment 2 interpret Lock 28, Deep Lock Quarry, Lock 27, the town of Everett, Szalay Farm, the Cuyahoga River floodplain, Beaver Marsh, the removal of the salvage yard at Beaver Marsh, and Lock 26 (see Figure 3-70). Wayfinding and visitor comfort are supported by mile markers, stone and wood benches, and trail wayfinding signs.

Along this segment, the prism and Towpath Trail are crossed by several utility corridors. A cable route crosses under the prism and Towpath Trail north of Stanford Run. Overhead lines transect the trail near Hooker's Run and Stanford Run.



Figure 3-70: Interpretive features at Ira Trailhead (QE, 2021).

Segment 2 Analysis and Evaluation

Segment 2 contributes to the historic character of the cultural landscape. Overall, the Towpath Trail, canal prism, three locks, the railroad bridge retaining wall, a large basin, and the Bolanz Floodgate are retained in their original locations. Remnants of a private bridge, the Furnace Run Aqueduct, an arch culvert, and a floodgate are also present within the segment; however, the above-ground elements of these features are no longer visible. Materials and workmanship are retained for the extant canal structures, berm, and historic towpath route. The original design of the canal corridor is discernable for most of its length except for Beaver Marsh, which submerges the canal prism and towpath berm. The canal corridor retains views to historic structures and compatible agricultural land use that support the canal's setting within a low-density rural landscape. Setting is slightly diminished where incompatible modern development is visible from the Towpath Trail, for example, as it is at the manufactured housing development. Integrity of feeling is impacted by loss of water within the canal prism and instances of dense vegetation along the Towpath Trail that hinder understanding of the relationship between the prism, historic towpath route, and surrounding landscape.

Segment 3: Unwatered Canal from Peninsula (Lock 29) to Interstate 80

Segment 3 extends from Lock 29 at Peninsula (Sta 1123) to I-80 (Sta 1034). In the Ohio History Inventory, this segment corresponds to SUM-3258-04. Peninsula is described in detail in a separate section in this chapter (see pages 3. 210).

Segment 3 encompasses 1.7 miles of the Towpath Trail where it closely parallels the Cuyahoga River. The segment also includes the Valley Rail bridge near mile marker 23. This portion of the canal corridor experiences frequent flooding. Although the canal prism is discernable between Lock 31 and Lock 30, the section of the canal between Lock 30 and Lock 29 has been substantially destroyed due to frequent flooding. Another short section of the canal prism is visible at the north end of the segment. Throughout Segment 3, the Towpath Trail is in a narrow floodplain between the Cuyahoga River and a steep valley wall. Visible portions of the canal prism are not actively watered, but some areas retained water due to overland runoff or river flooding during the April 2021 field investigations for this study. Stumpy Basin marks the northern end of this segment. The largest basin within the park, it served as a winter shelter for canal boats and a wide-water turnaround. Figure 3-71 illustrates a typical cross-section of the Cuyahoga River, Towpath Trail, canal prism, and valley wall.

Visitors access Segment 3 from trailheads in Boston (to the north) or Peninsula (to the south). Both locations also provide Cuyahoga Valley Scenic Railroad stations.

Existing condition of Segment 3: unwatered canal from Lock 31 to Lock 29 is illustrated on Drawing EC-4 (see page 3.83).

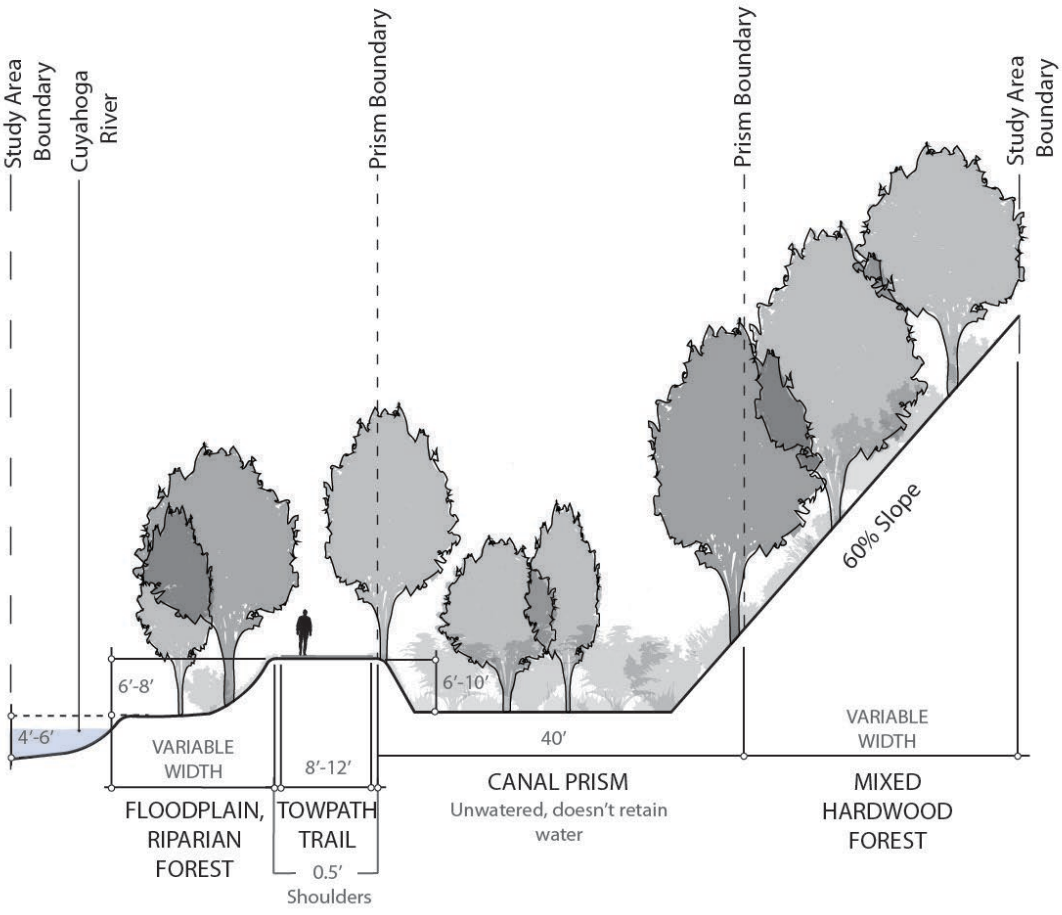


Figure 3-71: Typical cross-section of canal corridor in Segment 3.

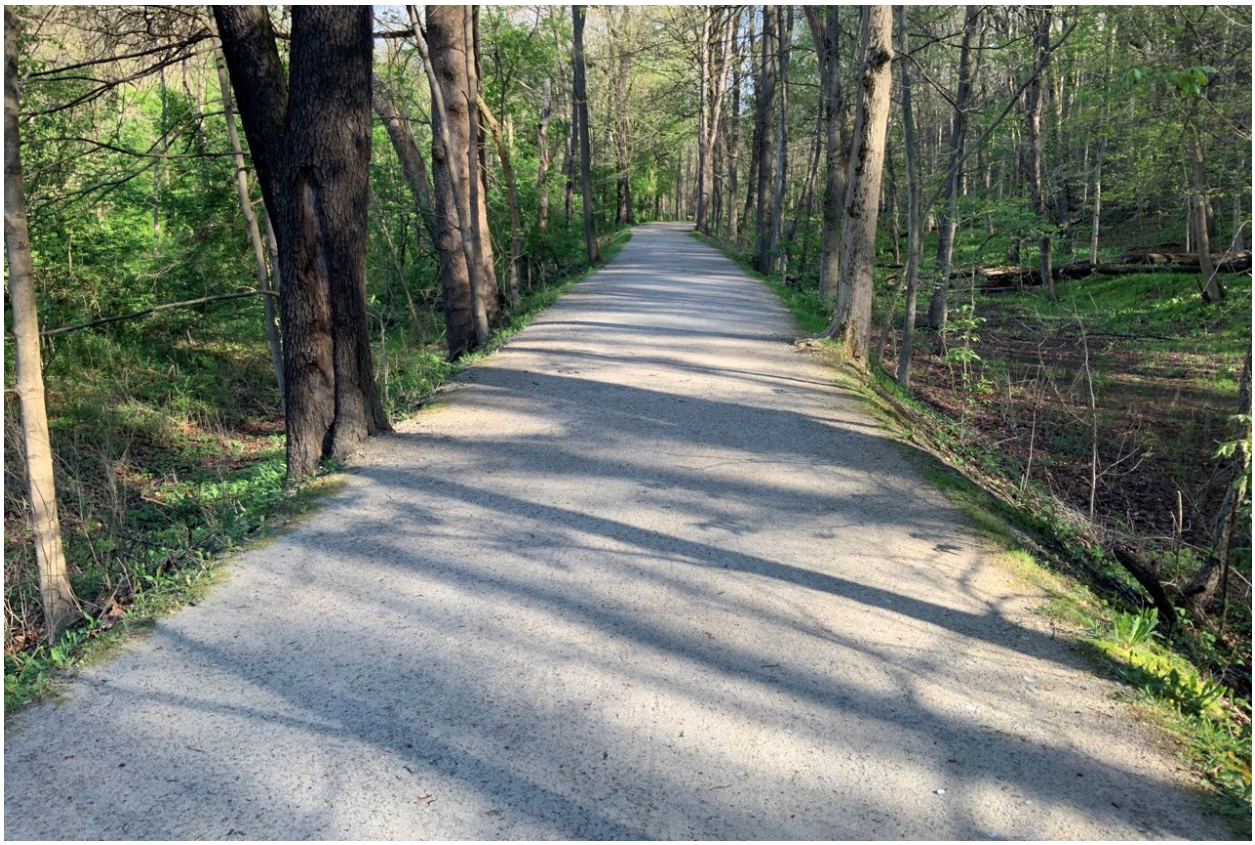


Figure 3-72: Typical view of canal prism, Towpath Trail and berm with narrow shoulder, and floodplain, looking north (QE, 2021).

Segment 3 Circulation

Towpath Trail

The Towpath Trail follows the historic route of the towpath between Lock 29 and Lock 30, between mile marker 23 and Lock 31, and north of Stumpy Basin to I-80. The section of trail between Lock 30 and mile marker 23 is on a narrow shelf between the river and the steep slope of the valley wall, to the east of its historic location. Frequent flooding has destroyed the original canal prism and towpath berm through this section. Similarly, flooding and erosion have destroyed the berm and the Towpath Trail on the west side of Stumpy Basin, which is now traversed by a boardwalk.

Within Segment 3, the Towpath Trail is paved with a combination of limestone fines, asphalt, and boardwalk. Asphalt is typically installed where the trail occupies a narrow, easily eroded berm between the prism and the river, or between the valley wall and the river. The asphalt surface is 8 feet wide and in good to fair condition. Linear wear is present along the asphalt trail north of Lock 30 (see Figure 3-73).

Limestone fines portions of the trail are 8 to 12 feet wide and in good to fair condition. Short segments of the trail are rutted, and water ponds on the trail near Lock 31 (see Figure 3-74). The trail shoulder also varies in width. Where the canal prism is discernable between Lock Nos. 29 and 31, the trail shoulder is very narrow (4 to 6 inches) and accompanied by a steep 6- to 10-foot drop to the bottom of the prism. Between Stumpy Basin and I-80, the trail shoulder is typically 8 to 10 feet wide (see Figure 3-75).

Stumpy Basin is traversed by an 8-foot wide wood boardwalk with a brown painted 4” x 4” wood curb on both sides (see Figure 3-86). The boardwalk extends for approximately 1660 feet along the southern end of the basin. It exhibits some loose boards and substantial wear on the wood curbs and is in fair to poor condition.

Road and Trail Connections

There are no formal trail intersections along Segment 3. The Cuyahoga Valley Scenic Railroad passes over the Towpath Trail east of mile marker 23, and a service road labeled "Employees Only" connects between the trail and railroad tracks (see Figure 3-77). A closed asphalt-paved access road extends east from the Towpath Trail west of Stumpy Basin (see Figure 3-78). Social trails extend west into the floodplain north of Lock 30 (see Figure 3-79).



Figure 3- 73: Asphalt trail surface between valley wall slope and slough of Cuyahoga River (QE, 2021).



Figure 3-74: Ponding on limestone fines trail at Lock 31 (QE, 2021).



Figure 3-75: Canal corridor west of Stumpy Basin (QE, 2021).



Figure 3-76: Boardwalk through Stumpy Basin (QE, 2021).



Figure 3-77: Cuyahoga Valley Scenic Railroad bridge and restricted access service road near mile marker 23 (QE, 2021).



Figure 3-78: Asphalt connection between Towpath Trail and closed road near Stumpy Basin (QE, 2021).



Figure 3-79: Social trail and riverbank stabilization area north of Lock 30 (QE, 2021).

Segment 3 Vegetation

For most of Segment 3, the Towpath Trail and prism are within a narrow strip of riparian forest along the east bank of the Cuyahoga River. Where visible, the canal prism is occupied by American sycamore, Ohio buckeye, black cherry, elm, cottonwood, and other floodplain species; periodically, the prism is obscured by dense multiflora rose and honeysuckle, which become more prevalent toward the southern end of the segment. Riverbank stabilization is in progress north of Lock 30. Mixed hardwood forest grows on the steep slope on the east side of the canal corridor.

Stumpy Basin is an emergent herbaceous wetland. Cattails and reed canarygrass are prevalent within the basin, with numerous small trees and shrubs along the wetland margins. Vegetation composition within the basin may be affected by salt and sediment runoff from the adjacent highway.

Between Stumpy Basin and I-80, the slope to the east side of the Towpath Trail is occupied by successional grassland, which transitions to mixed hardwood forest near Stumpy Basin. Emergent wetland vegetation grows on the edges of the canal prism where it retains water.

Segment 3 Buildings and Structures

Canal structures are addressed in the Overall Study Area Buildings and Structures section of this chapter. Historic canal structures in Segment 3 include Lock 30 and spillway, the Peninsula Feeder Complex, and Lock 31 and spillway (see Figure 3-80 through 3-82). Four modern culverts are along Segment 3. Although no longer watered, the structures are generally in fair condition.

Canal Prism

The canal prism is intermittently visible along Segment 3 and is in fair to poor condition. Its shape is discernable between Lock 31 and mile marker 23 and between Stumpy Basin and I-80 (see Figure 3-83). The bottom of the canal prism is typically 6 to 10 feet below the elevation of the Towpath Trail between

Lock 31 and mile marker 23, but it reduces to only 1 to 2 feet below the elevation of the Towpath Trail at the north end of the segment. The prism is also intermittently visible between Lock 30 and Lock 29; in these locations, the shape of the prism is less well defined, and it is frequently overgrown with understory woody vegetation. There is no evidence of the canal prism at a bend in Cuyahoga River where the trail follows a narrow shelf between the valley wall and river slough (between Lock 30 and mile marker 23).

In Peninsula south of Boston Run the canal corridor crosses the Cuyahoga River, and therefore, drainage is from the east into the canal prism.

Two culverts under the towpath berm were identified draining the area between Locks 29 and 30 (see Figures 3-84 and 3-85). From Lock 29 to Lock 30 the canal prism is difficult to recognize. Drainage through this area generally comes from the steep hillside to the east, and drainage appears to flow over the Towpath Trail to the river. Several hundred feet south of where the railroad crosses the Towpath Trail, the canal prism is distinguishable. Along this stretch, drainage from the hillside goes directly to the prism, where it appears to overflow the trail south of the railroad crossing to get to the river. No major erosion problems appear to exist within this area.

From Lock 30 to Lock 31, drainage from the hillside goes into the canal prism and appears to flow north down the prism to the Stumpy Basin marsh area. The canal prism is visible from the north end of the marsh to I-80, where highway construction has filled it in. This section of the prism has standing water.

Between Locks 30 and 31 there is an approximately 200-foot stretch where the river is encroaching on the canal corridor.

Stumpy Basin

Stumpy Basin occupies approximately 30 acres on the north side of a bend in the Cuyahoga River. When in use, the basin measured 1,200 feet long by 550 feet wide. Water fed into the basin from the Lock 31 spillway. The basin is now completely silted in, although it is still identifiable as a large, relatively open depression adjacent to the Towpath Trail (see Figure 3-86). Water is periodically retained following river flooding.

The Stumpy Basin marsh area has a drainage area of approximately 160 acres. The boardwalk over the basin and surrounding marsh area provides ample connectivity to the river.



Figure 3-80: Lock 30 (QE, 2021).



Figure 3-81: Peninsula Feeder (QE, 2020).



Figure 3-82: Lock 31 (QE, 2021).



Figure 3-83: Canal prism and limestone fines trail with narrow shoulder between Lock 30 and Lock 31 (QE, 2020).



Figure 3-84: Modern reinforced concrete box culvert north of Peninsula (SKDG, 2021).



Figure 3- 85: Modern corrugated metal pipe culvert north of Peninsula (SKDG, 2021).



Figure 3- 86: Stumpy Basin (QE, 2021).

Segment 3 Views

Views in Segment 3 are constrained to the canal corridor by dense riparian forest vegetation. The Cuyahoga River is periodically visible where the trail passes close to the river, in particular west of Stumpy Basin where visitors experience periodic views of the Cuyahoga River as the floodplain narrows along the Towpath Trail (see Figure 3-87 and Figure 3-88).



Figure 3-87: View of Cuyahoga River and canal prism from Towpath Trail berm west of Stumpy Basin (QE, 2021).



Figure 3-88: View of Cuyahoga River from Towpath Trail west of Stumpy Basin (QE, 2021).

Segment 3 Small-Scale Features

Small-scale features within Segment 3 include mile marker 23, interpretive waysides at each of the canal structures (Lock 31, Lock 30, and the Peninsula Feeder), and riverbank stabilization signs attached to painted 4" x 4" wood posts. At the northern end of the segment, a wayside and double-sided bench are integrated into the Stumpy Basin boardwalk (see Figure 3-89).



Figure 3-89: Wood benches and wayside at Stumpy Basin (QE, 2021).

Segment 3 Analysis and Evaluation

Segment 3 contributes to the historic character of the cultural landscape. Lock 31 and spillway, the Peninsula Feeder Complex, and Lock 30 and spillway are retained in their original locations and exhibit materials and workmanship associated with their construction and repair during the period of significance. The majority of the towpath berm and canal prism within this segment are also within their historic locations, except for two areas where erosion and flooding from the adjacent Cuyahoga River have destroyed the original earthen features: between Lock Nos. 30 and 31 and at Stumpy Basin. Historic character is slightly diminished in some locations due to the prevalence of modern features that support the Towpath Trail's transition on and off of the historic towpath berm, loss of water within the canal prism, encroachment of vegetation and siltation within the canal prism, between the prism and Towpath Trail, and within Stumpy Basin. Although the steep, forested valley walls do much to protect the historic setting and feeling of an early nineteenth-century waterway, these aspects are also affected by incompatible views of the interstate and associated traffic noise at the north end of the segment.

Segment 4: Unwatered Canal from Interstate 80 to Boston (Lock 32)

Segment 4 extends from Interstate 80 (I-80) (Sta 1034) to Boston (Lock 32) (Sta 995). In the Ohio History Inventory, this segment corresponds to SUM-3257-04. Boston is described in detail in a separate section in this chapter (see page 3.181).

The character of this 0.5-mile segment of the study area is dominated by bridges associated with I-271 and I-80 (Ohio Turnpike), which pass over the canal corridor just south of Boston. In this location, the type of development that threatened the Cuyahoga Valley and eventually led to park establishment is highly visible. Within this segment, the prism has been destroyed by modern construction and past flooding. Figure 3-890 illustrates a typical cross-section of the Towpath Trail and its relationship to the Cuyahoga River between the two freeway overpasses. Numerous modern culverts manage stormwater runoff along this segment of the trail.

Visitors access Segment 4 from trailheads in Boston (to the north) or Peninsula (to the south). Both locations also offer Cuyahoga Valley Scenic Railroad stations.

Existing condition of Segment 4: unwatered canal from I-80 to Boston (Lock 32) is illustrated on Drawing EC-4 (see page 3.83).

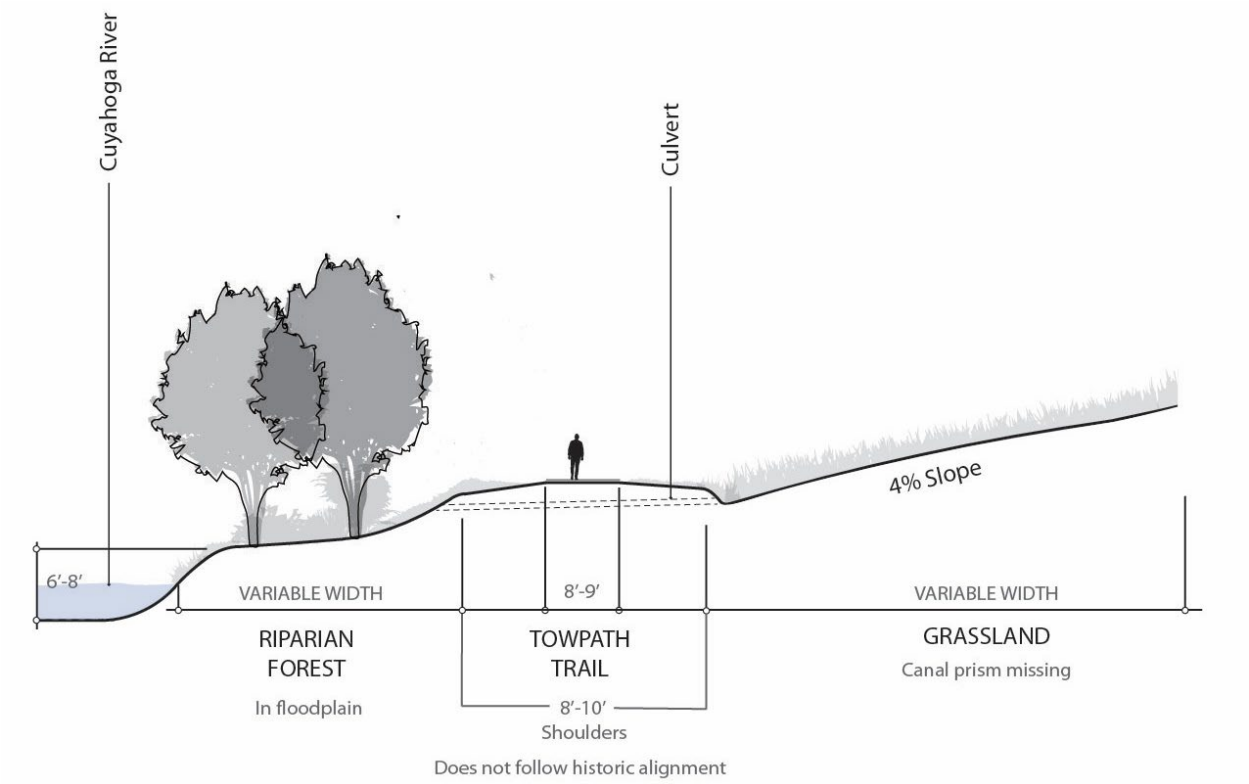
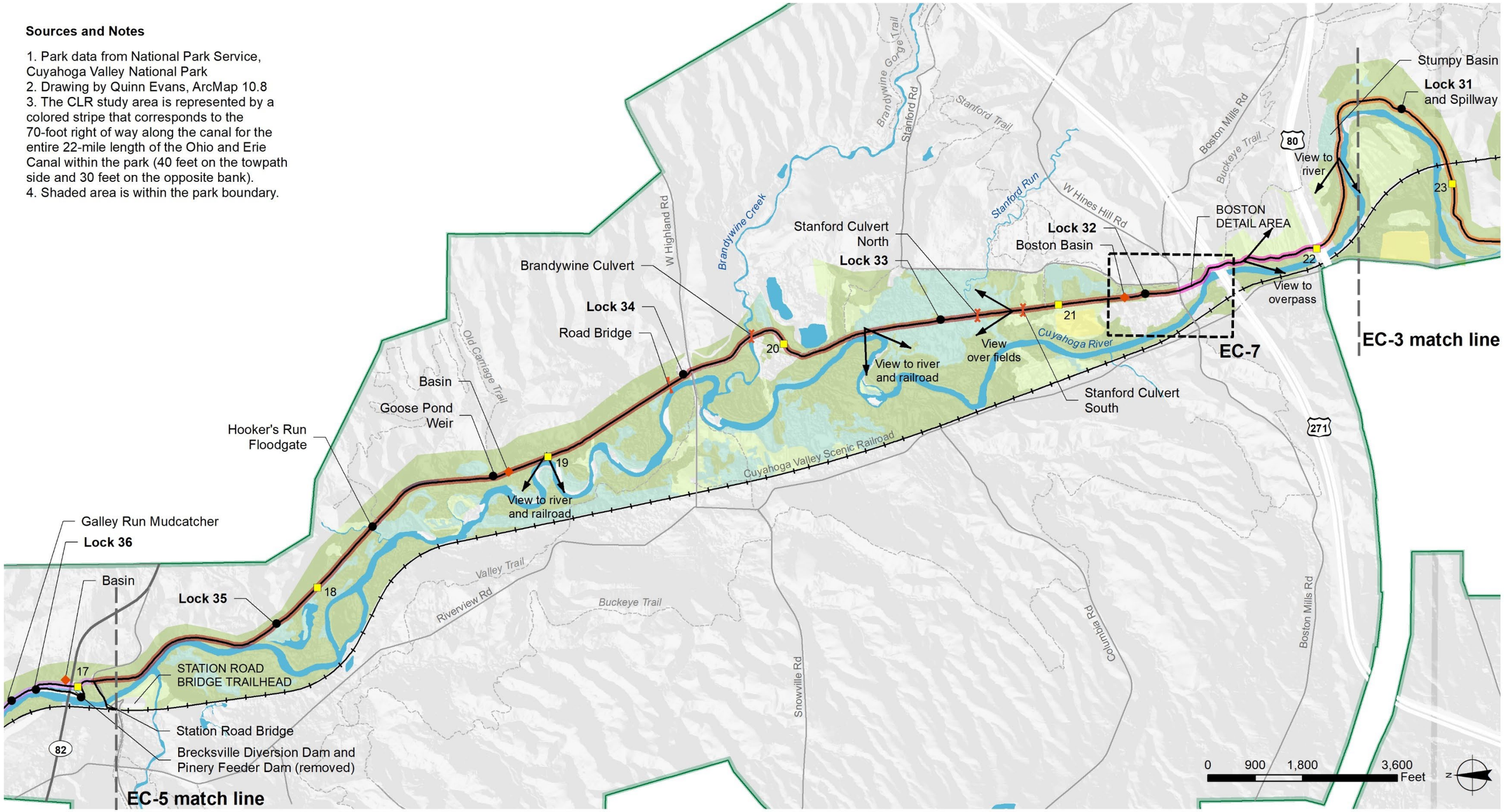


Figure 3-90: Typical cross-section of Ohio & Erie Canal Towpath Trail between I-271 and I-80.

Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.



Legend

Boundaries
- Study area: Segment 4
- Study area: Segment 5
- CVNP Boundary
- Detail Area

Natural Systems
- River, Stream, or Pond

Buildings and Structures
- Lock, Waste Structure, or Feeder
- Culvert
- Bridge Abutment
- Basin

Small-Scale Features
- Mile Marker (Nautical)

Circulation
- Ohio and Erie Canal Towpath Trail
- Trail outside study area
- Local Connecting Road
- Highway
- Railroad

Vegetation
- Wetland
- Forest
- Agriculture
- Successional Meadow, Field, or Shrubland

Views
- View

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Segment 4 and Segment 5 Existing Condition

October 2022

Segment 4 Circulation

Towpath Trail

Within Segment 4, the Towpath Trail is paved with asphalt or limestone fines. A good condition asphalt surface extends between Boston and the I-271 bridge, including the intersection with a bridle connector trail (see Figure 3-91). This surface (extending between the overflow parking lot and the bridle trail) serves as an access route to the sewer treatment wetlands in the open area east of the Towpath Trail between I-80 and I-271.

South of I-271, the Towpath Trail is paved in fair to poor condition limestone fines. The trail surface is 8 to 9 feet wide, expanding to 12 to 14 feet where the trail passes beneath I-80 (see Figure 3-91). This portion of the trail is in fair condition.

Road and Trail Connections

Immediately south of the I-271 overpass, the asphalt-paved Valley Trail/Buckeye Trail runs southeast from the Ohio & Erie Canal Towpath Trail. Bare earth social trails extend west from the Towpath Trail to the Cuyahoga River (see Figure 3-92).



Figure 3-91: Asphalt-paved Towpath Trail and intersection with bridle connector trail, looking south from I-271 overpass (QE, 2021).



Figure 3-92: Social trail extending west toward Cuyahoga River from Towpath Trail (QE, 2021).

Segment 4 Vegetation

Riparian forest occupies the narrow floodplain between the Towpath Trail and the Cuyahoga River. The slope to the east side of the Towpath Trail is occupied by successional grassland.

Large wetland cells to treat wastewater from the NPS building in Boston occupy the open area between the Towpath Trail and Valley Trail to the east of the study area. NPS has seeded native grassland communities in this area, but invasive reeds and cattails are common.

Segment 4 Buildings and Structures

Canal Prism

Between the I-271 and I-80 overpasses, the ground surface has been extensively graded to address drainage into the Cuyahoga River and the canal prism has been destroyed (see Figure 3-93). Numerous small culverts drain the highway right-of-way under the trail with swales draining to the river. Connectivity is essentially 100%, although accompanied by extensive erosion between the modern culverts and river (see Figures 3-94 and 3-95).



Figure 3-93: Typical view of Towpath Trail between I-271 and I-80, looking north (QE, 2021).



Figure 3-94: Typical modern trail culvert (left) and drainageway (right) between I-271 overpass and I-80 overpass (SKDG and QE, 2021).



Figure 3-95: Erosion between modern culvert and Cuyahoga River between I-271 overpass and I-80 overpass (QE, 2021).

Segment 4 Views

Views in the northern portion of Segment 4 are dominated by the two interstate overpasses (see Figure 3-96 and Figure 3-97).



Figure 3-96: View of Towpath Trail dominated by I-80 overpass (QE, 2021).



Figure 3-97: View of I-80 overpass from south (QE, 2021).

Segment 4 Small-Scale Features

Small-scale features along Segment 4 include mile marker 22, which is underneath the I-80 overpass, and 4” x 4” painted wood trail signs clustered near the Towpath Trail intersection with Valley Trail.

Segment 4 Analysis and Evaluation

The portion of Segment 4 between I-271 and I-80 does not contribute to the historic character of the cultural landscape. The area has been extensively regraded to address the two interstate overpasses, and the towpath berm and canal prism are no longer discernable. Historic views—and the overall setting and feeling of the segment—are heavily impacted by the incompatible visual and auditory presence of the two freeways.

Segment 5: Unwatered Canal from Boston (Lock 32) to Station Road Bridge

Segment 5 includes the unwatered canal between Boston (Lock 32) (Sta 995) and Station Road Bridge (Sta 765). In the Ohio History Inventory, this segment corresponds to SUM-3256-04 and SUM-3255-04. Boston is described in detail in a separate section in this chapter (see page 3.181).

Within this 4.6-mile segment of the study area, the Towpath Trail is located on a berm to the west of the canal prism. Although the canal will not be watered by the pump near Station Road Bridge (anticipated installation 2022), water from tributaries to the river or stormwater runoff is retained along much of the canal prism in this segment. The Cuyahoga River meanders north to the west of the Towpath Trail, accompanied by a low floodplain of irregular width between the berm and the river. Figure 3-98 illustrates a typical cross-section of the towpath berm and trail, canal prism, and their relationship to the floodplain and river.

In addition to the canal, Segment 5 also includes the site of Jaite Mill, constructed in 1905 as a paper mill and later sold to the National Container Corporation. Visitors access Segment 5 from four trailheads: Station Road Bridge, Red Lock, Stanford, and Boston. The Cuyahoga Valley Scenic Railroad provides stations at Station Road Bridge and Boston.

Existing condition of Segment 5: unwatered canal from Boston (Lock 32) to Station Road Bridge is illustrated on Drawing EC-4 (see page 3.83).

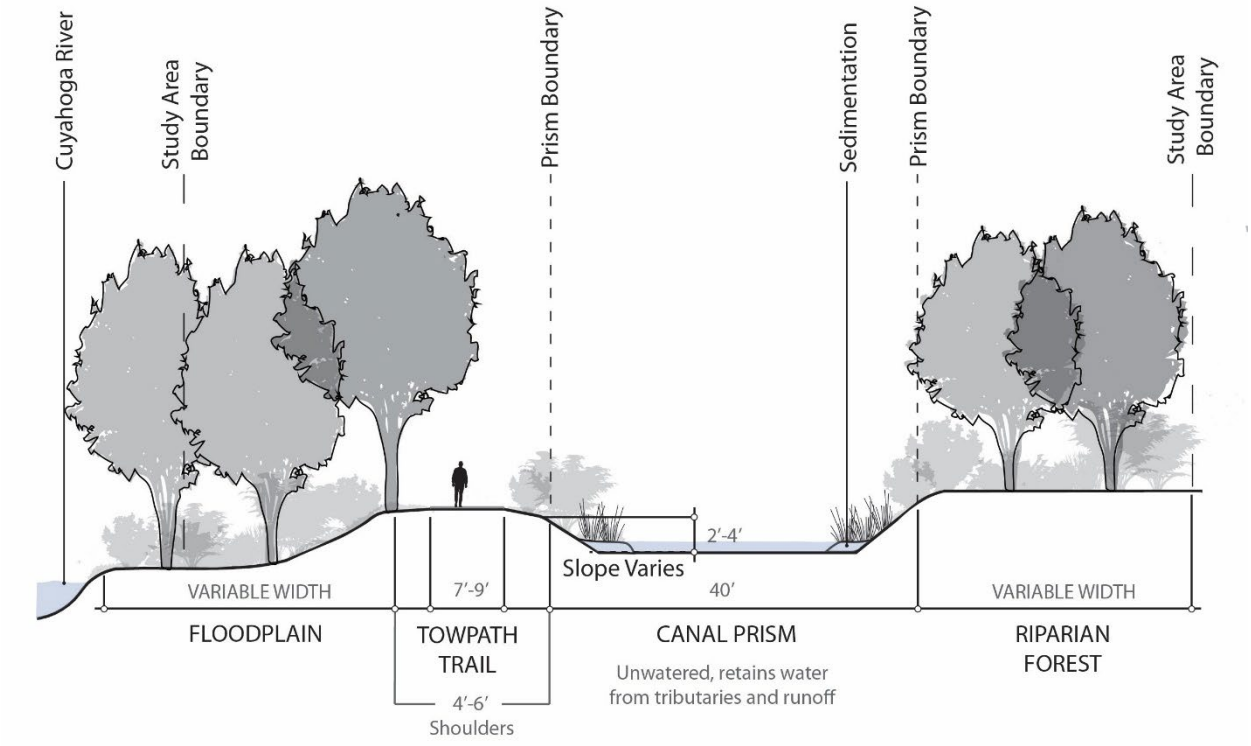


Figure 3-98: Typical cross-section of canal corridor in Segment 5.



Figure 3-99: Typical view of unwatered canal prism, Towpath Trail and berm, and floodplain along Segment 5 (view looking north from mile marker 18) (QE, 2021).



Figure 3-100: Typical view of canal prism, Towpath Trail and berm, and floodplain in successional grassland and emergent wetland areas south of W Highland Road (view is looking north from south of Jaite Paper Mill site) (QE, 2021).

Segment 5 Circulation

Towpath Trail

The Towpath Trail follows the historic route of the towpath for the length of Segment 5 and is paved with limestone fines or asphalt.

Most of the trail in Segment 5 is paved with limestone fines at a width of 7-9' along the towpath berm. The limestone fines surface is typically in fair condition. During April 2021 field investigations, significant rutting was noted north of the Goose Pond Weir, north of mile marker 19, and near the Stanford trail connection (see Figure 3-101).

At the north end of the segment between Lock 35 and Station Road Bridge, limestone fines surface is interspersed with sections of 8-foot wide asphalt (see Figures 3-102). The asphalt is in overall good condition, except for a severely rutted section immediately north of Lock 35, where water frequently floods over the trail.

The trail shoulder is typically a 4- to 6-feet-wide mown grass strip throughout Segment 5. Between the Goose Pond Weir and mile marker 19, the trail shoulder narrows to 6 inches to 1 foot.

Modern trail bridge structures with wood railings are installed over four large culverts or waste structures (including the Goose Pond Weir and Hooker's Run Floodgate) (see Figure 3-103).

Road and Trail Connections

The Towpath Trail connects with several other NPS trail systems within the length of Segment 5. The Old Carriage Trail accesses the Towpath Trail in two locations: south of Hooker's Run Floodgate and south of the Goose Pond Weir. Both trail connections incorporate modern wood bridges spanning the canal prism (see Figure 3-104). The Valley Trail extends east from the Towpath Trail near the Jaite Mill site, and the Stanford trail crosses the canal prism over a culvert, extending east from a point north of Lock 32. Along this segment, the only road crossing is at W Highland Road (see Figure 3-105).

A gravel access road to the Jaite Mill site extends along the west side of the Towpath Trail between W Highland Road and mile marker 20 (see Figure 3-106). The access road is at an elevation below the towpath berm and is incorporated into the Valley Trail.

Red Lock Trailhead is on the north side of W Highland Road, immediately east of Lock 34. The trailhead includes a small asphalt-paved parking area, comfort station, and information kiosk (see Figure 3-107). A poor condition asphalt walkway connects the trailhead to the Towpath Trail just north of the lock.



Figure 3-101: Severely rutted trail north of Goose Pond Weir (QE, 2021).



Figure 3-102: Asphalt trail south of Station Road Bridge trailhead (QE, 2021).



Figure 3-103: Modern trail bridge over tributary north of Goose Pond Waste Weir (SKDG, 2021).



Figure 3-104: Bridge over canal prism at Towpath Trail intersection with Old Carriage Trail (QE, 2021).



Figure 3-105: Road crossing at W Highland Road (QE, 2021).



Figure 3-106: Relationship between canal prism, Towpath Trail and berm, and Jaite Paper Mill access road south of W Highland Road (QE, 2021).



Figure 3-107: Visitor comfort and wayfinding features at Red Lock Trailhead (QE, 2021).

Segment 5 Vegetation

Vegetation along Segment 5 of the canal corridor is dominated by riparian forest. Dense invasive honeysuckle (*Lonicera* spp.) and multiflora rose (*Rosa multiflora*) periodically encroach on the trail, particularly at the north end of the segment (see Figure 3-108). Openings in the forest increase in the southern portion of the segment; south of W Highland Road, the riparian forest is interspersed with broad emergent herbaceous wetlands dominated by common reed (*Phragmites australis)*, cattails (*Typha* spp.), reed canarygrass (*Phalaris arundinacea*), and sedges (*Carex* spp.), as well as small successional herbaceous fields and shrubland.

Emergent wetland vegetation grows on the edges of the canal prism where it retains water. In some locations, the margins of the canal prism are also occupied by understory trees and shrubs, including honeysuckle, multiflora rose, and boxelder. Woody vegetation is typically denser where the prism does not retain water and frequently obscures the shape of the canal. At the southern end of Segment 5, dense reed canarygrass and common reeds occupy portions of the prism.



Figure 3-108: Incompatible vegetation encroachment on trail south of Station Road Bridge trailhead (QE, 2021).

Segment 5 Buildings and Structures

Concrete and Stone Canal Structures

Concrete and stone canal structures visible along this segment of the study area include:

- Lock 35 and spillway
- Hooker's Run Floodgate
- Goose Pond Waste Weir/Floodgate
- Road Bridge over Lock 34 Wasteway
- Lock 34 and spillway
- Brandywine Creek Culvert
- Lock 33 and spillway
- Stanford Run Culvert North
- Stanford Run Culvert South

Canal structures are addressed in the Overall Study Area Buildings and Structures section of this chapter (see pages 3.17). Photos of select structures are provided in Figure 3-109 through Figure 3-117.

Although structures associated with Jaite Paper Mill were removed following arson in 1992, the site of the mill is visible from the Towpath Trail (see Figure 3-118).



Figure 3-109: Lock 35 (QE, 2021).



Figure 3-110: Hooker's Run Floodgate (QE, 2021).



Figure 3-111: Goose Pond Weir (QE, 2021).



Figure 3-112: Lock 34 (QE, 2021).



Figure 3-113: Road bridge over Lock 34 wasteway (QE, 2021).



Figure 3-114: Brandywine Creek Culvert (QE, 2021).



Figure 3-115: Lock 33 (QE, 2021).



Figure 3-116: Stanford Run Culvert South (QE, 2021).



Figure 3-117: New culvert addressing flooding associated with Stanford Run (SKDG, 2021).



Figure 3-118: Site of removed Jaite Paper Mill (QE, 2021).

Canal Prism

The canal prism is typically visible throughout Segment 5. The condition of the prism varies with miscellaneous hydrologic conditions throughout this segment from good, well-defined sections that have been recently dredged or retain water to fair condition segments that are heavily silted and densely overgrown. Limited segments of the canal prism were also modified due to twentieth-century utility or industrial use and are no longer discernable.

At its northern end (immediately south of Station Road Bridge), the prism is discernable but heavily overgrown with invasive shrubs. Beaver damming north of Lock 35 impacts the ability of culverts to drain this portion of the prism, and in some locations, water persistently floods over the trail (see Figure 3-119 and Figure 3-120). A portion of the canal has been dredged near Lock 35; however, slow flow through culverts in this area leads to regular ponding (see Figure 3-121).

Between Lock 35 and Lock 34, the prism typically retains water, forming an emergent wetland that attracts wildlife, including turtles and waterfowl (see Figure 3-122). Water within the canal prism is interrupted by a berm south of mile marker 18 associated with an old Cleveland Electric site (see Figure 3-123).

Water continues to be retained in the canal prism south of W Highland Road but becomes heavily silted and less well defined between Brandywine Creek Culvert and Lock 32 (see Figure 3-124). Throughout Segment 5, the Towpath Trail is typically 2 to 4 feet above the elevation of the canal prism.

Due to modifications to Stanford Run through agricultural activities, construction of the canal, and development within the watershed, the stream was eventually cut off from the Cuyahoga River, and Stanford Road experienced regular flooding. To address these issues, a new culvert was installed under the Towpath Trail by the US Army Corps of Engineers between winter 2019 and winter 2020 (see Figure 3-126).[65] The new culvert was added to the south of the historic Stanford Run Culvert North, which remains in place.

Major tributaries and drainage structures through the canal prism are as follows (refer to Appendix A):

- Sta 786, 273 ac—new box culvert
- Sta 806, 37 ac—groundwater seepage over Towpath Trail
- Sta 806, 37 ac—possible blocked culvert
- Sta 811, 67 ac—this is the north end of the channel dug to reroute drainage to the south to an existing culvert.
- Sta 818, 20 ac—+/- 18" steel pipe
- Sta 831, 866 ac—drainage structure undetermined
- Sta 838+34, 67 ac—Hooker's Run Flood Gate
- Sta 856, 357 ac—trial bridge over stream
- Sta 863+50, 273 ac—Goose Pond Weir—Stream bed, head cut, erosion upstream and channel bank erosion downstream.
- Sta 898, 231 ac—drainage structure undetermined
- Sta 904, 278 ac—+/- 48" CMP
- Sta 916, 17,288 ac—Brandywine Creek Culvert
- Sta 931, 160 ac—trail bridge over stream
- Sta 957, 1,329 ac—Stanford Run North new bridge culvert
- Sta 969, 76 ac—Stanford Run South Culvert

[65] National Park Service, "Stanford Run Restoration," accessed December 2021, https://www.nps.gov/media/photo/gallery.htm?pg=3080909&id=1F99024A-F597-4DE8-9864-A0ABA46935D8.

Connectivity is good due to the large number of culverts draining under the Towpath Trail to the river (see Figure 3-125 through Figure 3-127).

North of Lock 34 (Red Lock) is a marshy area where the river persistently floods the canal prism (see Figure 3-128). Erosion of the towpath berm is prevalent in this area.

Basin (870+00 to 873+00)

This basin, present south of Goose Pond Weir by the time of the 1892 Silliman survey, remains as a shallow depression in the landscape occupied by dense understory vegetation. In April 2021, water was retained in the basin due to nearby blocked culverts.



Figure 3-119: Beaver damming impacts culverts north of Lock 35 (QE, 2021).



Figure 3-120: Persistent groundwater surfacing and flowing over Towpath Trail near Lock No. 35 (QE, 2021).



Figure 3-121: Ditch created by park maintenance staff to provide drainage to an existing upstream culvert under the Towpath Trail to reduce maintenance on the downstream area of the prism and berm (QE, 2021).



Figure 3-122: Water retained in prism south of Lock 35 (QE, 2021).



Figure 3-123: Old Cleveland Electric site with berm over prism south of mile marker 18 (QE, 2021).



Figure 3-124: Shallow canal prism south of Stanford Run (QE, 2021).



Figure 3-125: Water passing under trail south of Hooker's Run Floodgate (QE, 2021).



Figure 3-126: Modern HDPE culvert conveys water within the canal prism under Stanford Trail connection to the Towpath Trail (SKDG, 2021).



Figure 3-127: Culvert near Jaite Mill site (SKDG, 2021).



Figure 3-128: Marsh north of Red Lock (QE, 2021).

Segment 5 Views

Due to the prevalence of riparian forest along Segment 5, dense vegetation encroaches on the trail in many locations, limiting views to the canal corridor. The canal prism is visible where water is retained and woody vegetation growth is limited. Where water is not present, the canal prism is frequently overgrown by dense multiflora rose, honeysuckle, or other invasive shrubs and is not discernable.

Shorter vegetation south of W Highland Road affords visitors open views over fields and emergent or shrub wetlands (see Figure 3-129). Where the river runs adjacent to the trail, visitors also experience views of the Cuyahoga River and the Cuyahoga Valley Scenic Railroad on the opposite bank. Mile marker 19 and south of mile marker 20 provide dramatic viewpoints where bends in the river abut the Towpath Trail berm (see Figure 3-130).

Before its destruction in 1992, the Jaite Mill Historic District was prominently visible from along the Towpath Trail near mile marker 20. Today, only partial foundations and paving are visible from the trail (see Figures 3-127).



Figure 3-129: Expansive view over successional grassland near Stanford Run (QE, 2021).



Figure 3-130: Dramatic view over Cuyahoga River from mile marker 19 (QE, 2021).

Segment 5 Small-Scale Features

Wayfinding and visitor comfort in Segment 5 are supported by mile markers, stone and wood benches, and trail wayfinding signs. Wood board fences protect steep slopes at several culverts along the trail. Waysides interpret Lock 33, the Jaite Mill site, Lock 34, and Lock 35.

Along this segment, the prism and Towpath Trail are crossed by several utility corridors. A cable route crosses under the prism and Towpath Trail north of Stanford Run (see Figure 3-131). Overhead lines transect the trail near Hooker's Run and Stanford Run.



Figure 3-131: Cable utility corridor north of Stanford Run (QE, 2021).

Segment 5 Analysis and Evaluation

Segment 5 contributes to the historic character of the landscape. Within this segment, the towpath berm, canal prism, Lock 35 and Spillway, Hooker's Run Floodgate, Goose Pond Waste Weir/Floodgate, the basin, the road bridge over Lock 34 Wasteway, Lock 34 and spillway, Brandywine Creek Culvert, Lock 33 and spillway, Stanford Run Culvert North and Stanford Run Culvert South are in their original locations and retain materials and workmanship from their construction and repairs during the period of significance. The design of the canal corridor with canal prism and towpath berm to the east of the Cuyahoga River is discernable for most of the length of the segment, aided by water retained within the canal prism. Modifications to the canal corridor and surrounding landscape since the end of the period of significance include multiple modern road crossings and trailheads and encroachment of dense understory vegetation within the canal prism and along the Towpath Trail.

Segment 6: Watered Canal from Station Road Bridge to Sagamore Creek

Segment 6 extends from Station Road Bridge (Sta 765) to Sagamore Creek (Sta 635). In the Ohio History Inventory, this section is the southern end of SUM-3260-07.

This 2.4-mile segment of the study area is one of the best-preserved sections of the canal corridor, where visitors can clearly understand the canal's historic appearance and function. Within this segment, the Towpath Trail and canal prism pass through a narrow, wooded valley known as the "Pinery Narrows." The Towpath Trail is located on a berm to the west of the canal prism and is typically within 100 yards of the Cuyahoga River; in many areas along the Pinery Narrows, the berm is located immediately adjacent to the river and functions as a levee between the prism and the nearby waterbody. The east side of the canal corridor is defined by a steep valley wall deeply incised by intermittent stream drainages. At the time of writing, this portion of the canal was not being actively watered due to the 2020 removal of the Brecksville Diversion Dam and Pinery Feeder Dam but will return to this condition following the installation of a pump near Station Road Bridge. Figure 3-132 illustrates a typical cross-section of the towpath berm and trail, canal prism, and their relationship to the Cuyahoga River.

Existing condition of Segment: watered canal from Station Road Bridge to Sagamore Creek is illustrated on Drawing EC-5 (see page 3.127).

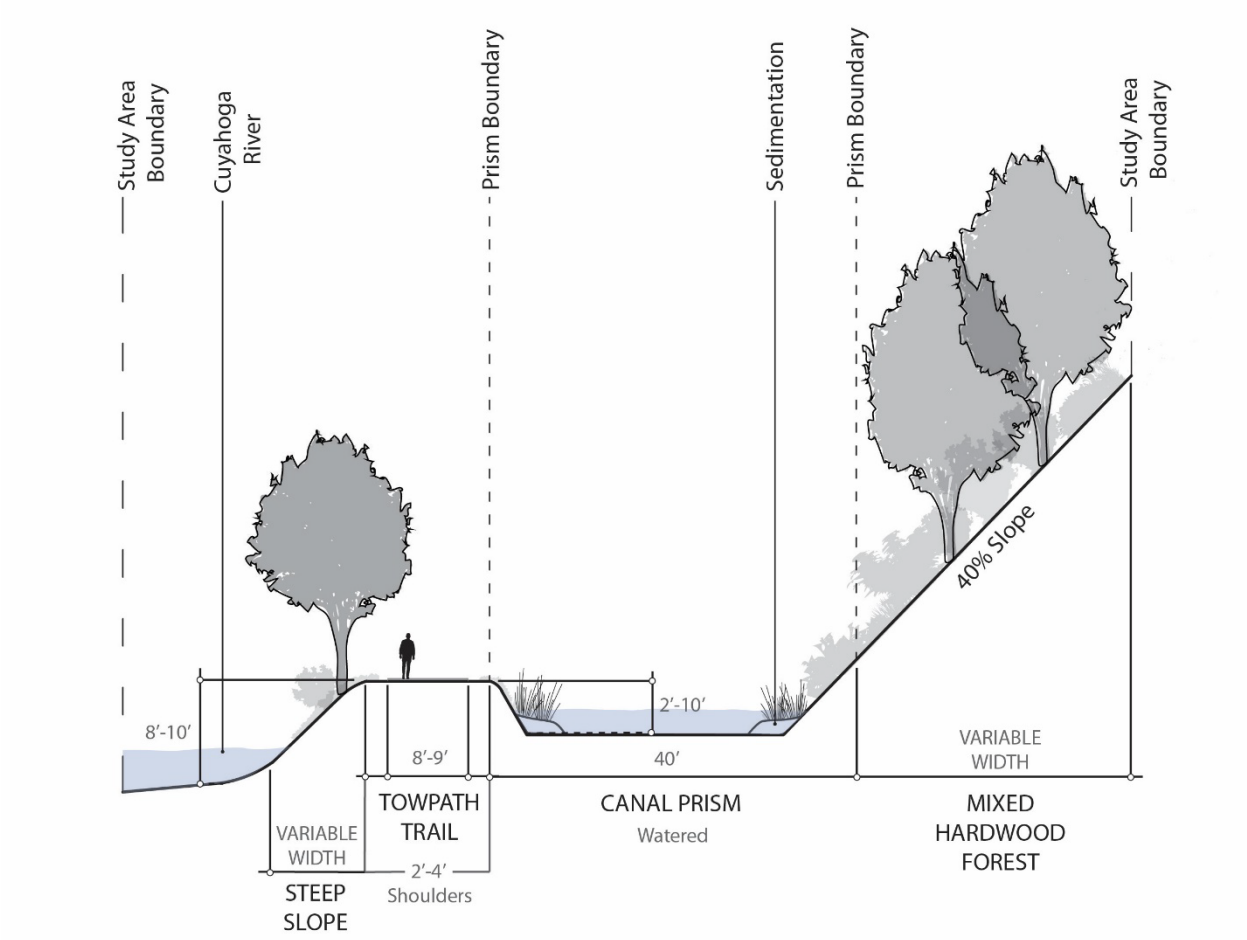
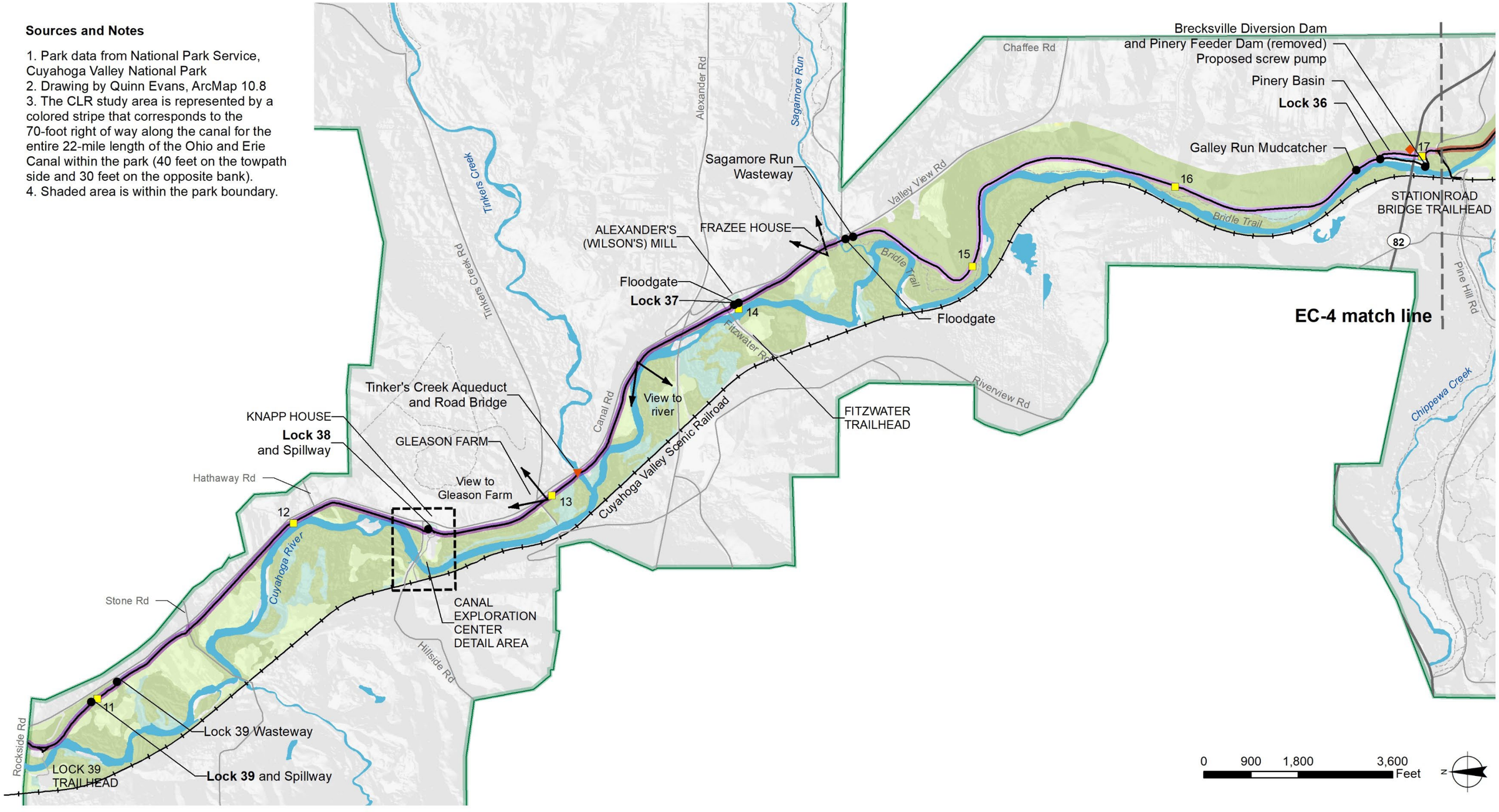


Figure 3-132: Typical cross-section of canal corridor in Segment 6.

Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.



0 900 1,800 3,600 Feet

N

Legend

Boundaries
- Study area: Segment 6
- Study area: Segment 7
- CVNP Boundary
- Detail Area

Natural Systems
- River, Stream, or Pond

Buildings and Structures
- Lock, Waste Structure, or Feeder
- Aqueduct
- Basin

Small-Scale Features
- Mile Marker (Nautical)

Circulation
- Ohio and Erie Canal Towpath Trail
- Trail outside study area
- Local Connecting Road
- Highway
- Railroad

Vegetation
- Wetland
- Forest
- Agriculture
- Successional Meadow, Field, or Shrubland

Views
- View

Cuyahoga Valley National Park
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Segment 6 and Segment 7 Existing Condition

October 2022



Figure 3-133: Typical view of canal prism, Towpath Trail and berm, and Cuyahoga River along Segment 6 (Pinery Narrows) (QE, 2021).

The Brecksville Diversion Dam and Pinery Feeder Dam were recently removed as part of a joint National Park Service, US Environmental Protection Agency, and US Army Corps of Engineers Cuyahoga River restoration project (see Figure 3-134). To mitigate impacts to the cultural landscape, including the removal of the water feeder for the watered portion of the canal, a screw pump is planned near the location of the removed dams to direct water into the canal via the existing feeder channel (see Figure 3-135). Anticipated installation of the pump is 2022.[66]

[66] National Park Service, Ohio Environmental Protection Agency, Ohio Department of Natural Resources, and US Army Corps of Engineers, "Cuyahoga River Ecosystem Restoration Canal Diversion Dam Project Environmental Assessment," Agency Review August 2016.



Figure 3-134: Brecksville Diversion Dam, 2015 (NPS).

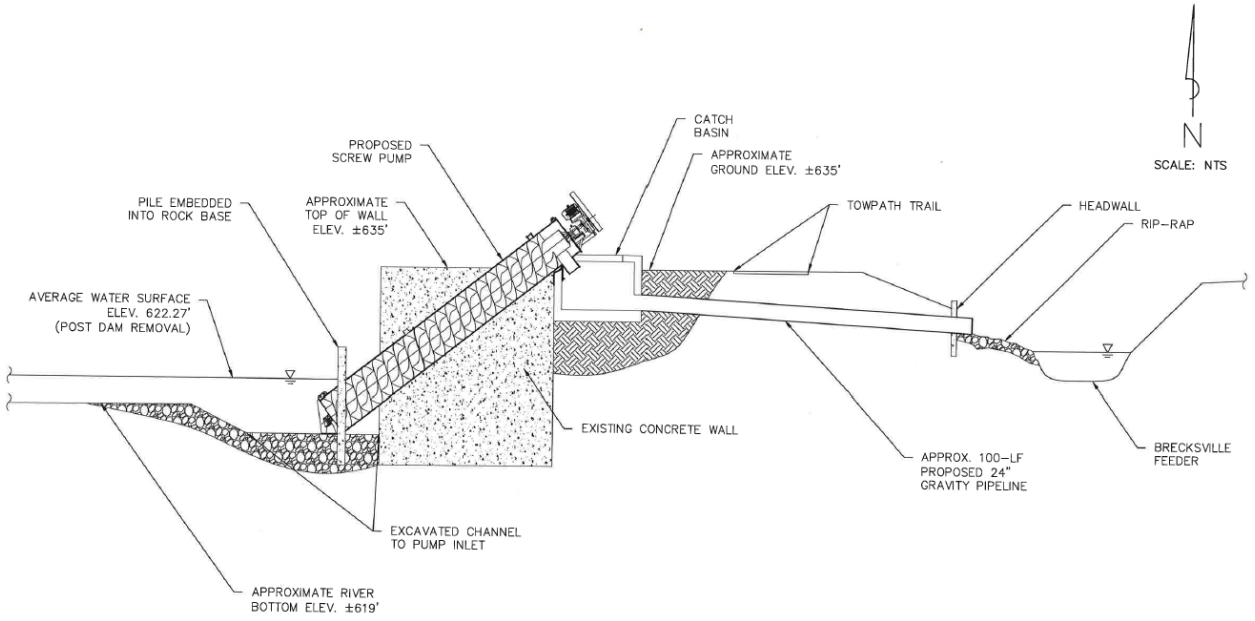


Figure 3-135: Screw pump design, October 2018 (Prime AE/Friends of the Crooked River).

Segment 6 Circulation

Towpath Trail

The Towpath Trail follows the historic route of the towpath for the length of Segment 6 and is paved with limestone fines or asphalt.

Limestone fines are the most common paving type along this segment at a width of 8 to 9 feet along the towpath berm. Overall, the condition of limestone fines along this segment is fair. Rutting and ponding are common along the trail. In particular, poor condition limestone fines were noted at a bend in the trail near mile marker 15 (April 2021) (see Figure 3-136). Similar to Segment 7, a bare earth bridle trail extends through the floodplain parallel to the Towpath Trail to route horses off of the limestone fines sections of the trail (see Figure 3-137). The bridle trail occupies the Towpath Trail in narrow locations where the trail is asphalt paved.

An asphalt surface is installed where the Towpath Trail is located on a narrow levee between the canal prism and Cuyahoga River. The asphalt surface is typically 8 feet wide and in fair to poor condition. Cracking and deterioration of the asphalt surface are common at transitions between trail surface types, and many segments of the surface exhibit rutting and wear due to dredging equipment (see Figure 3-138).

At its narrowest, the trail shoulder is a 2- to 4-foot-wide mown strip along the berm between the trail and the dropoff to the river. The shoulder between the trail and the canal prism is frequently wider, extending to 3 to 8 feet before sloping down to the prism.

The only substantial access limitation along the segment of the trail due to steep slope occurs at the Sagamore Creek Wasteway, located immediately south of the trail's intersection with Sagamore Creek (see Figure 3-139). The trail follows along the top of the wasteway, incorporating two steep slopes at its northern and southern ends.

Brecksville Feeder Channel Access Road

At the south end of the study area is a short asphalt road extending along the west side of the Brecksville Feeder Channel (see Figure 3-140). The road was formerly an access route to the Pinery Feeder and will also serve as an access point to the pump planned for installation in 2022. It is in good to fair condition.

Road and Trail Connections

The Station Road Bridge Trailhead is on the west side of the Cuyahoga River near the southern end of Segment 6. Visitors access the trailhead via an asphalt trail that crosses over Station Road Bridge, the oldest metal truss bridge in the Cuyahoga Valley (constructed 1882, see Figure 3-141). The trailhead includes a large asphalt-paved parking area, interpretive and wayfinding materials, a comfort station, and the Brecksville Station (see Figure 3-142). The railroad runs along the west side of the trailhead.

Pine Hill Service Drive accesses Segment 6 from the east, aligning with the entrance to the Station Road Bridge Trailhead.

Ohio State Route 82 passes over the southern end of Segment 6 on the Brecksville-Northfield High Level Bridge (see Figure 3-151). The bridge is a multi-arched concrete structure constructed in 1931 under the design and direction of Alfred M. Felgate, Cuyahoga County Bridge Engineer.[67]

[67] Historic American Engineering Record, Brecksville-Northfield High level Bridge, Spanning Cuyahoga River Between Brecksville and Northfield, Brecksville, Cuyahoga County, Ohio, on file at the Library of Congress, https://www.loc.gov/pictures/item/oh1537/.



Figure 3-136: Deep rutting in limestone fines trail south of mile marker 15 (QE, 2021).



Figure 3-137: Bridle trail connection south of Sagamore Waste Weir (QE, 2021).



Figure 3-138: Rutting and deterioration of asphalt at transition between trail surfaces north of mile marker 16 (QE, 2021).



Figure 3-139: Steep slope at south end of Sagamore Waste Weir (QE, 2021).



Figure 3-140: Access route to future location of pump (adjacent to the former location of Brecksville Diversion Dam) along west side of Brecksville Feeder Channel (QE, 2021).



Figure 3-141: Station Road Bridge (QE, 2020).



Figure 3-142: Station Road Bridge Trailhead (QE, 2021).

Segment 6 Vegetation

Segment 6 is largely surrounded by forests: mixed hardwood forest dominated by oaks (*Quercus* spp.), hickories (*Carya* spp.), sugar maple (*Acer saccharum*), and American beech (*Fagus grandifolia*) occupies steep slopes on the east side of the canal prism. Within the floodplain to the west is riparian forest, with a greater prevalence of cottonwood, sycamore, boxelder, and elms. Understory and herbaceous species including dogwood, Ohio buckeye, multiflora rose, Amur honeysuckle, Virginia bluebells, and garlic mustard were also recorded along the segment during April 2021 field investigations. A narrow strip of shrubs and small trees anchors the towpath berm where it forms a levee between the river and canal prism (see Figure 3-143). Vegetation within the canal prism is limited; where siltation is substantial, emergent reeds and cattails are periodically present.



Figure 3-143: Small trees and shrubs anchor the narrow berm between the Towpath Trail and the river north of the Galley Run Mudcatcher. Emergent wetland vegetation is visible within the canal prism, where siltation is exacerbated by sediment deposits passing through (QE, 2021).

Segment 6 Buildings and Structures

Concrete and stone canal structures are addressed in the Overall Study Area Buildings and Structures section of this chapter (see pages 3.17). The Sagamore Creek Floodgate and Waste Weir, Lock 36, and the Galley Run Mudcatcher are located within Segment 6 (see Figure 3-144).

Except for Lock 36, canal structures were maintained by American Steel after the canal was abandoned for transportation use and remain in good condition. Most of Lock 36 was filled when the Route 82 bridge was constructed in 1931, and only the northwest wing wall and a portion of the top coping of the west lock chamber wall are visible. The remainder of the lock may be in place below grade. A modern pedestrian bridge carrying the Towpath Trail spans the feeder outlet east of the lock (see Figure 3-145).



Figure 3-144: View of Galley Run Mudcatcher from north (QE, 2021).



Figure 3-145: Northwest wall of Lock 36 and pedestrian bridge over feeder channel (QE, 2021).

Canal Prism

The canal prism is visible but heavily silted throughout the length of this segment. The northern end of the canal prism is 2 to 4 feet below the elevation of the Towpath Trail berm; at the southern end of the segment, the trail rises to 6 to 10 feet above the canal prism.

This section has several large tributaries of 280 ac, 334 ac, 493 ac, 92 ac, and 480 ac, draining directly to the canal prism from the east. These drainage areas currently consist of dense forest. About 380 acres of this area are located within the park. The other 1300 acres are located outside the park. Much of the area outside the park is currently developed, and the rest is subject to being developed in the future. Development with improper erosion control and improper storm water detention requirements can cause more siltation within the canal prism.

There is essentially no connectivity between tributaries upstream of the prism and the river within this section.

The river is somewhat removed from the trail through this section, within approximately 30 feet of the trail at a few locations.

Silt deposits occur at several locations, generally at the mouths of the large tributary areas flowing into the prism (see Figure 3-136 through Figure 3-138). These deposits were noted at Mudcatcher Sta 755, Sta 725, Sta 719, and Sta 697.

The prism has lost its original shape throughout a large portion of the southern end of this section and is much wider.



Figure 3-146: Siltation from Galley Run Mudcatcher within canal prism (QE, 2021).



Figure 3-147: Siltation in canal prism north of mudcatcher (SKDG, 2021).



Figure 3-148: Siltation in canal prism north of mudcatcher (SKDG, 2021).

Brecksville/Pinery Feeder Channel

The Brecksville/Pinery Feeder Channel is retained in the landscape as a secondary prism connecting from the future pump installation location near Station Road Bridge to the prism near Lock 36. The channel sits approximately 6 to 10 feet below the elevation of the surrounding topography. It is heavily silted and the edges grow with herbaceous and small woody species. Due to the removal of the Brecksville Diversion Dam and Pinery Feeder Dam, the channel no longer connects to the Cuyahoga River; however, it will once again serve as a feeder channel following installation of the pump.

Pinery Basin (767+00 to 771+50)

This basin was historically located on the east side of the canal corridor near the Pinery Feeder Channel. It was partially filled by 1912, and was later filled with debris from construction of the nearby Brecksville-Northfield High Level Bridge. Only a shallow depression remains in the landscape. It is difficult to discern from the surrounding topography.

Segment 6 Views

Views along the length of Segment 6 are primarily defined by the Towpath Trail's proximity to the river. In many locations, the trail passes near the river, affording visitors views of both the canal prism and the Cuyahoga River (see Figure 3-149). Where the floodplain expands to the west of the Towpath Trail, views are constrained to the trail and canal prism by dense floodplain forest vegetation to the west and upland forest along the steep slope to the east (see Figure 3-150). At the southern end of the segment, visitors experience dramatic views of the Station Road Bridge from both the north and south (see Figure 3-151 and Figure 3-152). Portions of these views are blocked during leaf-on. Views along this segment are largely protected from modern development by the steep valley slope on the east side of the canal prism, and Canal Road is partially visible just south of Sagamore Creek.



Figure 3-149: View of Cuyahoga River (left) and canal prism (right), looking north along Towpath Trail near mile marker 16 (QE, 2021).



Figure 3-150: View of canal prism and Towpath Trail constrained by mixed hardwood forest to the east and riparian forest to the west at mile marker 15 (QE, 2021).



Figure 3-151: View of Route 82 bridge from Brecksville Diversion Dam access road (QE, 2021).



Figure 3-152: View of Route 82 bridge from north (near Lock 36) (QE, 2021).

Segment 6 Small-Scale Features

Interpretive features are clustered at the southern end of the segment near the Station Road Bridge trailhead and provide information on the Galley Run Mudcatcher and Lock 36. An additional wayside along the Brecksville Diversion Dam access route interprets recent river restoration efforts. Additional wayfinding and visitor comfort features include mile markers, wood trail signs, and stone and wood benches. A gas pipeline extends over the canal prism just south of Sagamore Creek.

Segment 6 Analysis and Evaluation

Segment 6 contributes to the historic character of the cultural landscape. The canal prism, towpath berm and trail, Sagamore Creek Floodgate and Waste Weir, remnants of Lock 36, and Galley Run Mudcatcher are retained in their historic locations and clearly convey the original design and function of the Ohio & Erie Canal through Pinery Narrows. The segment's relative seclusion from modern development due to the steep valley slopes protects the setting of the canal corridor. The feeling of the mid-1800s canal landscape is further supported by water retained within the canal and limited vegetation encroachment on the prism and Towpath Trail. Modifications from the historic condition are limited to the southern end of the segment, where the Pinery Feeder channel was altered after the end of the period of significance to support the American Steel and Wire Company's hydraulic lease. The historic Pinery Dam was also recently removed as part of river restoration efforts.

Segment 7: Watered Canal from Lock 39 Trailhead to Sagamore Creek

Segment 7 is located at the northern end of the study area, from Sagamore Creek (Sta 635) to Rockside Road (Sta 442). In the Ohio History Inventory, this section is the northern end of SUM-3260-07.

Within this 3.8-mile segment of the study area, the Towpath Trail is located on a berm to the west of the canal prism. The Cuyahoga River meanders north to the west of the Towpath Trail, accompanied by a low floodplain of irregular width between the berm and the river. Canal Road and associated power lines run along the east side of the prism. Canal structures along this segment of the study area include Lock No. 39 and Spillway, Lock 38 and spillway, three waste weirs, three culverts, two basins, a flood gate, and the Tinkers Creek Aqueduct. At the time of writing, this portion of the canal was not being actively watered due to the removal of the Brecksville Diversion Dam but will return to this condition following the installation of a pump near Station Road Bridge. Figure 3-153 illustrates a typical cross-section of the towpath berm and trail, canal prism, and their relationship to the floodplain/river and Canal Road.

Visitors access Segment 7 from four trailheads: Rockside Road, the Canal Exploration Center, Fitzwater parking area, and Frazee House. In addition, Cuyahoga Valley Scenic Railroad provides stations at Rockside Road and the Canal Exploration Center. Towpath Trail users may also access the segment from outside of the park to the north.

Existing condition of Segment 7: watered canal from Lock 39 Trailhead to Sagamore Creek is illustrated on Drawing EC-5 (see page 3.127). The Canal Exploration Center is described in detail in a separate section in this chapter (see page 3.162).

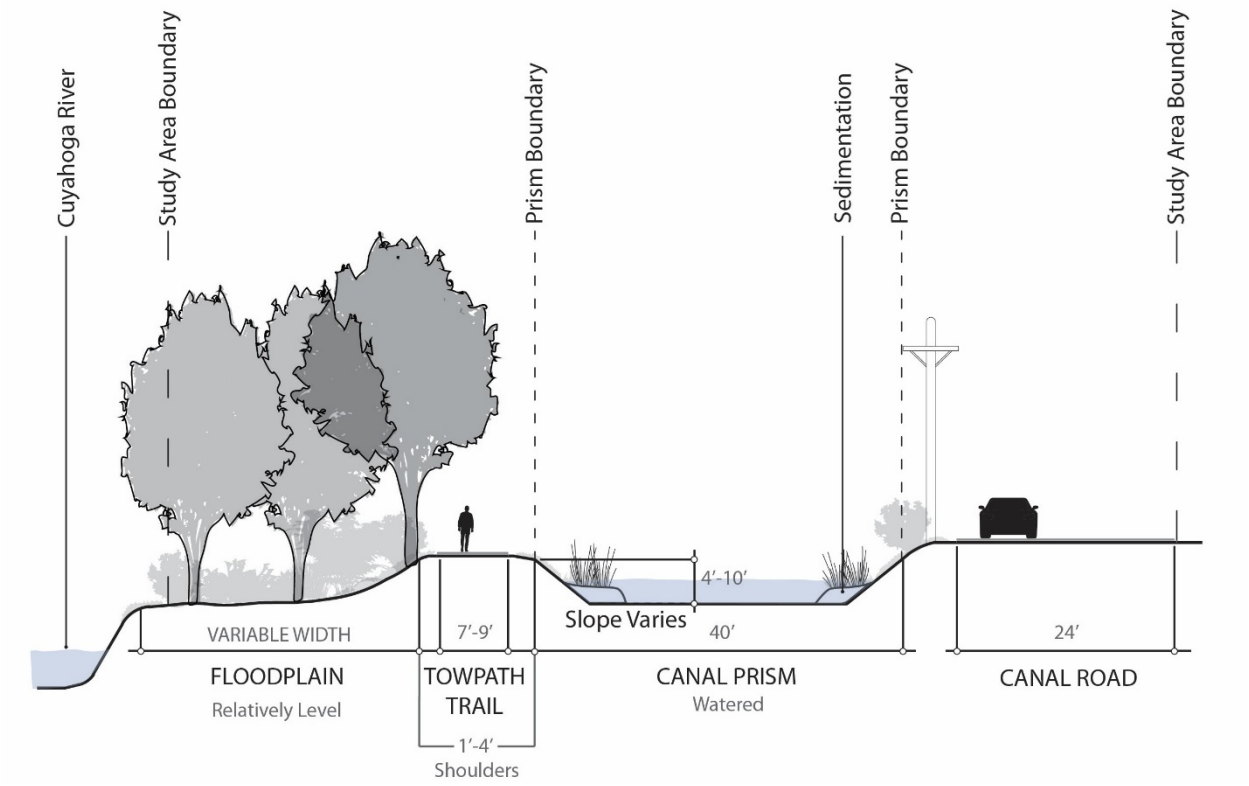


Figure 3-153: Typical cross-section of canal corridor in Segment 7.



Figure 3-154: Typical view of Canal Road, prism, Towpath Trail and berm, and floodplain along Segment 7 (QE, 2021).

Segment 7 Circulation

Towpath Trail

The Towpath Trail follows the historic route of the towpath for the length of Segment 7. Within this segment, the Towpath Trail is paved in a combination of limestone fines or asphalt.

The predominant paving type is limestone fines at a width of 7 to 8 feet along the towpath berm. Overall, the condition of limestone fines along this segment is good to fair. Rutting and ponding are most common at transitions between trail surfaces, near road intersections, and where trees overhang the trail (see Figure 3-155). Specific poor condition locations noted during field investigations include south of the Lock 39 Trailhead, near mile marker 12, below the Alexander Road overpass (erosion from stormwater runoff), and north of Wilson's (Alexander's) Mill.

Asphalt trails are installed in short lengths, typically in association with a trail or road intersection or a canal structure. Asphalt trail sections are typically laid to a width of 8 to 9 feet and are in good to fair condition (see Figure 3-156). The most common impacts to condition are surface wear, encroachment of vegetation on trail edges, and cracking at the transition between surface types.

The trail is accompanied by a mown grass shoulder extending between the trail and the edges of the berm to the east and west. Throughout this segment, the trail shoulder is typically 2 to 4 feet wide. At its narrowest, the mown grass shoulder extends 1 to 2 feet on either side of the towpath berm; this condition occurs where the berm functions as a narrow levee between the river and canal prism, for example near Wilson's (Alexander's) Mill, at mile marker 12, and just south of the Lock 39 Trailhead (see Figure 3-157).

Road and Trail Connections

Segment 7 intersects with the Buckeye Trail and Hemlock Creek Trail. A bare earth bridle trail runs parallel to portions of the Towpath Trail and is periodically routed into the adjacent floodplain to prevent

horses from using limestone fines sections of the trail. The bridle trail exits the canal corridor at the Hemlock Creek Trail, where it proceeds to the Bedford Reservation.

Along this segment, the trail crosses Hillside Road and Fitzwater Road and runs beneath the Alexander Road overpass (see Figure 3-158). Several closed bridges pass over the canal prism at Hemlock Creek Trail, Stone Road, and near the Frazee House/Buckeye Trail (see Figure 3-159). Steep slopes at the trail intersection with Fitzwater Road exceed ABA standards (see Figure 3-160).

Although not an official trailhead, visitors may access the Towpath Trail from the Frazee House, located east of the canal corridor just north of Sagamore Run. The house site includes a small asphalt parking area and a comfort station. An asphalt walkway crosses Canal Road and the prism to access the Towpath Trail.

The Fitzwater parking area is on the west side of the Cuyahoga River along Fitzwater Road. It consists of a row of pull-in parking spaces on the south side of the road. Visitors access the Towpath Trail from a marked walkway along Fitzwater Road.

Rockside Station Trailhead is located at the northern boundary of the park. It is on the west side of the canal corridor and includes a small asphalt-paved parking area, kiosk, wayfinding signage, and river access. A bridge across the Cuyahoga River to the west leads to a large parking area associated with the Cuyahoga Valley Scenic Railroad station. North of the park boundary, the Towpath Trail continues north as an asphalt-paved multi-use trail. On the opposite side of the road is Thornburg Station.



Figure 3-155: Rutting within limestone fines trail north of Alexander Road bridge (QE, 2021).



Figure 3-156: Typical asphalt surface application, south of Tinkers Creek Road (QE, 2021).



Figure 3-157: Narrow trail shoulder near mile marker 12 (QE, 2021).



Figure 3-158: View of Alexander Road overpass (QE, 2021).



Figure 3-159: Bridge over canal prism at Tinkers Creek Road (QE, 2021). The bridge is closed to vehicle traffic, but it may function as an informal access route by pedestrians or bicycles.



Figure 3-160: Steep slope north of Alexander's (Wilson's) Mill (QE, 2021).

Segment 7 Buildings and Structures

Concrete and stone canal structures are addressed in the Overall Study Area Buildings and Structures section of this chapter (see page 3.17). Concrete and stone canal structures within Segment 7 include Lock 39 and spillway, Lock 38 and spillway, three waste weirs, three culverts, a flood gate, and the Tinkers Creek Aqueduct (see Figure 3-161 through Figure 3-167). Due to their continued maintenance by American Steel after the canal was abandoned for transportation use, canal structures along Segment 7 are typically in good condition.

Canal Prism

The canal prism is visible throughout the length of this segment. The relative elevation of the trail to the bottom of the prism varies from 8 to 10 feet near the northern end of the trail to 4 to 6 feet near Tinkers Creek Aqueduct.

No major tributaries drain into the canal prism in this segment. Major tributaries draining under the canal prism are as follows:

- Double box culvert—Sta 478+90, 275 ac
- Box culvert—Sta 504+88, 1,812 ac
- Tinkers Creek Aqueduct—Sta 566+00, 62,247 ac
- Sta 580 to Sta 635, 130 ac
- Sagamore Creek Culvert—636+00,
- Sta 510 to Sta 570, 143 ac—There are a few small pipes that dump directly into the watered section that appear to be from adjacent Canal Road drainage.

Connectivity between the prism and the river occurs during large rain events through overflow weirs. The Sagamore Creek floodgate at station 612 allows flow under the towpath berm. Overflow weirs at stations 464 and 637 will flow over the trail during large storm events.

The Cuyahoga River passes within 100 feet of the Towpath Trail and canal prism at several locations in Segment 7. Otherwise, it winds on a separate route for most of the area. Recent stabilization projects have addressed erosion along the riverbank in this segment.

During April 2021 field investigations, Segment 7 was not being actively watered due to removal of the diversion dam. Water retained within the prism is significantly below its historic level.

Basin (523+00 to 527+50)

This basin is located north of Lock 38 on the east side of Canal Road and is currently located outside of the study area. Due to the presence of Canal Road between the prism and basin by 1892, it had likely

already been abandoned by the late nineteenth century. It has been partially filled due to construction and widening of the road but is still discernable as an overgrown depression.

Alexander's (Wilson's) Mill

Included within the study area are two buildings associated with Alexander's (Wilson's) Mill: the mill building and a shed. The buildings face east toward Canal Road and are clustered around a small asphalt parking area now used by customers of Wilson Feed Mill. The mill complex is located southeast of Lock 37 and east of the Hooker's Run Floodgate and was designed to incorporate water from the Lock 37 wasteway to power the mill. It is the last surviving grist mill in the Cuyahoga Valley. The National Park Service owns the mill and is responsible for long-term maintenance. The property is leased to Wilson Feed Mill. The mill is a contributing feature to the Ohio & Erie Canal National Historic Landmark.

The mill is a three-story wood-framed vernacular building constructed in 1855 by Andrew Alexander (see Figure 3-168). It rests on a cut sandstone block foundation and is clad in white-painted wood clapboard siding. The building features a metal gable roof oriented along the long axis of the structure, integrated with wood and metal cupola ventilators along the ridgeline of the roof. On the west side of the structure, a one-and-a-half story shed-roof extension connects the main portion of the mill building to a two-story metal-clad gable-roof structure to the southwest; this structure also features a large dormer on its southeast corner. Another one-story shed-roof extension is on the east side of the building. The waterwheel is no longer functional, but remnants of the original machinery remain on site (see Figure 3-169). The mill building was in poor condition at the time of April 2021 field investigations.[68]

Immediately south of the mill building is a rectangular shed aligned north–south along the west edge of the parking area (see Figure 3-170). Three sets of barn doors on the building's east facade open onto the parking area. The shed is clad in white-painted clapboard siding and topped with an asphalt gable roof exhibiting severe sagging. The building is in severely degraded condition.

Gleason Farm

The Gleason (Gleeson) Farm consists of the Edmund Gleason House and Barn, located at the intersection of Tinkers Creek Road and Canal Road just east of the canal corridor. It is part of the Countryside program and leased for farming.[69] The farm is interpreted from the trail but is outside of the study area. The house, built in the 1850s, is a one-and-a-half story rectangular sandstone Greek Revival-style structure. It is topped with a gable roof featuring a large dormer over the central entrance. A wood spindle porch was added to the west facade ca. 1880, and there is a two-car attached garage on the rear (east) facade.[70] NPS rehabilitated the house in 2005–2006. The farm's large extant barn is typical of the dairy barn type developed at the University of Wisconsin's Agricultural Experiment Station. The barn is a two-and-a-half story structure located southeast of the Gleason House. It is clad in vertical wood siding and a corrugated sheet metal roof and was used for dairy cows.[71] The two buildings were listed in the National Register of Historic Places in 1978.

Frazee House

The Frazee House is an 1826 residence located on the east side of Canal Road just north of Sagamore Creek (see Figure 3-171). Although located outside the study area, the structure is prominently visible from the Towpath Trail. A small parking area at the house serves as a trailhead for canal corridor visitors.

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[68] Carol Poh Miller and Sam Tamburro, *Ohio Historic Inventory: Alexander Mill,* on file at Cuyahoga Valley National Park, 2000.

[69] "The Countryside Initiative," accessed December 2021, https://countrysidefoodandfarms.org/countryside-initiative/#Canal.

[70] National Register of Historic Places, Edmund Gleason House, Valley View, Cuyahoga County, Ohio, National Register #78000377.

[71] Carol Poh Miller and Sam Tamburro, *Ohio Historic Inventory: Edmund Gleeson Barn,* on file at Cuyahoga Valley National Park, 2000.

The building is a two-story, Federal-style brick house with gabled ends and symmetrical fenestration. The structure is load-bearing masonry, and two end chimney stacks are located at the gable ends. Windows are nine-over-nine with narrow muntins with brick lintels and sills.[72] The building is individually listed in the National Register of Historic Places.

Knapp House

The William H. Knapp House is a one-and-a-half story wood-frame Greek Revival-style house situated on the east side of Canal Road across from Lock 37. The house is partially visible from the Canal Exploration Center but is not interpreted and does not provide for visitor access. It is comprised of the main three-by-five bay structure and a later one-story ell added to the rear. The house rests on an ashlar sandstone foundation; the original clapboard siding has been obscured by aluminum siding or asphalt shingles.[73] Following years of neglect, the structure is in deteriorated condition and is slated for removal. The building is individually listed in the National Register of Historic Places.



Figure 3-161: Lock 39, looking south (QE, 2021).

[72] Carol Poh Miller and Sam Tamburro, *Ohio Historic Inventory: Frazee House,* on file at Cuyahoga Valley National Park, 2000.

[73] National Register of Historic Places, William Knapp House, Valley View, Cuyahoga County, Ohio, National Register #79000289.



Figure 3-162: Waste weir south of Lock 39 (QE, 2021).



Figure 3-163: Hooker's Run Floodgate, from riverbank (QE, 2021).



Figure 3-164: Lock 37, looking northeast (QE, 2021).



Figure 3-165: Sedimentation and sloughing of canal prism bank at south end of Lock 37 (QE, 2021).



Figure 3-166: Tinkers Creek Aqueduct (QE, 2021).



Figure 3-167: Tinkers Creek Aqueduct substructure, viewed from west (QE, 2021).



Figure 3-168: North and east facades of Alexander's (Wilson's) Mill (QE, 2021).



Figure 3-169: Missing turbine at Alexander's (Wilson's) Mill (QE, 2021).



Figure 3-170: East facade of shed located southwest of Alexander's (Wilson's) Mill (QE, 2021).



Figure 3-171: Front and side facades of Frazee House (QE, 2021).

Segment 7 Vegetation

A mix of riparian forest and successional meadow, field, and shrubland along the west side of the Towpath Trail results in varied open and closed views along the length of Segment 7. In forested areas, invasive shrubs frequently encroach on the trail (see Figure 3-172). To the east, the canal prism is occupied by emergent wetland vegetation including reed canarygrass (*Phalaris arundinacea*), common reed (*Phragmites australis*), cattails (*Typha* spp.), bulrush (*Schoenoplectus* spp.), sessilefruit arrowhead (*Sagittaria rigida*), and carex species (*Carex* spp.) (see Figure 3-173).



Figure 3-172: Incompatible understory encroachment on the Towpath Trail south of Alexander's (Wilson's) Mill (QE, 2021).



Figure 3-173: Dense wetland vegetation within the canal prism near Tinkers Creek Aqueduct is not consistent with the historic condition of the prism (QE, 2021).

Segment 7 Views

Visitors experience open views to the canal prism along the length of Segment 7. Due to its proximity to the prism, Canal Road is also frequently visible to the east of the canal corridor; during the growing season, shrubs and small trees block views of the road from the trail in some locations. Interpretive views are maintained from the trail to Wilson's (Alexander's) Mill, Gleason Farm, and Frazee House (see Figure 3-174 through Figure 3-177). Where the river runs adjacent to the trail, visitors are also afforded dramatic views of the Cuyahoga River and the Cuyahoga Valley Scenic Railroad on the opposite bank.



Figure 3-174: View from Towpath Trail to Cuyahoga River south of Tinkers Creek (QE, 2021).



Figure 3-175: View from interpretive materials to Wilson's (Alexander's) Mill is partially obscured by woody vegetation (QE, 2021).



Figure 3-176: View from Towpath Trail to Gleason Farm (QE, 2021).



Figure 3-177: Interpretive view and trail connection to Frazee House and trailhead (QE, 2021).

Segment 7 Small-Scale Features

Eleven interpretive nodes along the Towpath Trail provide information on the Whittlesey cultural complex, the missionary settlement of Pilgerruh, Lock 39, the Lock 39 wasteway, the Cuyahoga River as a historic resource, Gleason Farm, Tinkers Creek Aqueduct, Alexander's Mill, the Frazee House, and the historic tavern, store, and Lock 38 (addressed in the Canal Exploration Center Detail Area). In addition, an Ohio historical marker interprets South Park Village and the Whittlesey tradition near the Stone Road bridge over the canal prism (see Figure 3-178).

Mile markers, wood trail signs, stone and wood benches, and stone blocks support wayfinding and visitor comfort along the route.

Overhead utility lines cross the canal corridor near the Stone Road bridge, and a large utility corridor bisects Segment 7 near the Tinkers Creek Aqueduct. Gas pipelines are routed over the canal prism north of Lock 39 and north of mile marker 12 (see Figure 3-179).



Figure 3-178: Ohio historical marker near Stone Road bridge (QE, 2021).



Figure 3-179: Gas pipeline over canal prism near mile marker 12 (QE, 2021).

Segment 7 Analysis and Evaluation

Segment 7 contributes to the historic character of the landscape. The canal prism, towpath berm and trail, Lock 39 and spillway, Lock 38 and spillway, three waste weirs, three culverts, two basins, a flood gate, the abutments of the Tinkers Creek Aqueduct, and the Alexander's (Wilson's) Mill structures are retained in their historic locations and convey the original design and function of the Ohio & Erie Canal. The aspects of setting and feeling are supported by water retained within the canal prism, and limited vegetation within the prism and between the Towpath Trail and prism. In addition, numerous historic structures including the Frazee House, Gleason Farm, and Knapp House are visible from the Towpath Trail, consistent with the view during the period of significance. Although modern traffic is visible from the trail along Canal Road, visual connections between the road and canal corridor are well documented during the period of significance and modern development along the road is otherwise limited. Other modifications since the end of the period of significance include the addition of incompatible utilities across the northern and southern ends of the segment, the incompatible Alexander Road overpass, pedestrian connections to new trailheads, and the removal of historic buildings and structures that served canal traffic.

Detail Area Existing Condition and Landscape Analysis

Three areas along the canal corridor are addressed at a high level of detail to inform both understanding of their historic condition and recommended treatment concepts presented in Part 2 of this report. The detail areas were selected based on their significance; complex existing conditions related to circulation, vegetation, buildings and structures, and visitor experience; and potential to enhance integrity and interpretation of the canal corridor through future treatment.

This section presents a summary of existing conditions at each detail area by landscape characteristic, including an assessment of circulation routes and visitor amenities following ABA accessibility standards. This is followed by a landscape integrity evaluation and identification of important historic character considerations for the detail area.

Canal Exploration Center Detail Area

The Canal Exploration Center (CEC) is on the watered portion of the canal at Lock 38 and within Segment 7 of the study area. The detail area includes the Canal Exploration Center building, Lock 38 and its associated spillway, a parking area, interpretive exhibits, picnic tables, and a pedestrian connection to a train station for the Cuyahoga Valley Scenic Railroad. Vehicular access to the detail area is via Hillside Road, which extends west from Canal Road.

The Canal Exploration Center building, a network of asphalt and concrete walkways, and accompanying outdoor interpretive materials are clustered along the east side of the detail area, adjacent to Lock 38 and the Towpath Trail. The detail area is enclosed by dense riparian forest along the Cuyahoga River and canal prism. A picnic area occupies a large mown swale south of the visitor center building, which was graded to protect the building from flooding. The interior of the detail area is dominated by a large asphalt-paved parking area. On the opposite side of the Cuyahoga River from the parking area is a train station, which connects to the CEC and Towpath Trail via a pedestrian bridge. The spatial arrangement of the detail area, which centers on the parking area, results in an arrival experience that focuses on the back of the Canal Exploration Center building and does not convey the historic significance of the area.

Existing condition of the Canal Exploration Center Detail Area is illustrated on Drawing EC-6 (see page 3.163).

Canal Exploration Center Detail Area Circulation

Towpath Trail

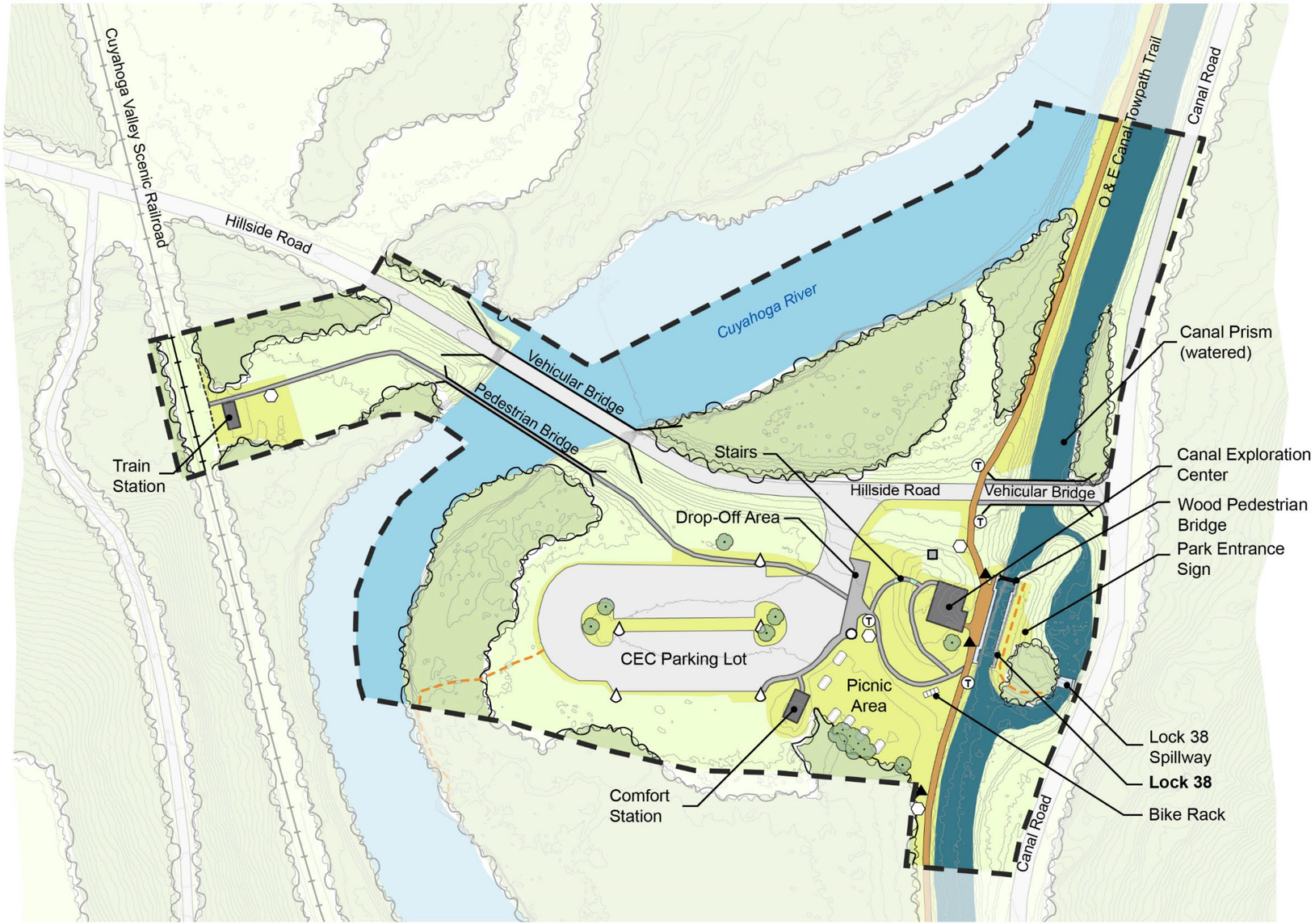
Within the Canal Exploration Center detail area, the Towpath Trail is an 8’-wide asphalt-paved route in good condition (see Figure 3-180). It follows the approximate alignment of the historic towpath, except where the trail intersects with Hillside Road. The trail’s mown grass trail shoulder is approximately 2 to 4 feet wide except along the steep, eroded slopes north of Lock 38, where it narrows to 1’ or less.

Minor changes in the color of the asphalt between the visitor center building and Lock 38 differentiate the lock demonstration viewing area from the Towpath Trail; however, NPS staff report that during lock demonstrations, visitors often block through-traffic along the Towpath Trail.

Within the detail area, the trail’s surface, width, and slope meet ABA standards for a universally accessible route. There is no surface tactile warning between the trail and Lock 38.

Vehicular Routes

Vehicles access the Canal Exploration Center detail area via Hillside Road, a two-lane asphalt road that runs east and west over the Cuyahoga River and canal prism, merging with Canal Road at a T-junction east of the detail area.



Notes and Sources

1. Cuyahoga Valley National Park GIS: water bodies, vegetation, buildings, and contours.
2. USGS GIS: roads and railroads
3. Quinn Evans and SKDG field investigations, April 2021

0 75 150 300 Feet

1 inch = 150 feet

N

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Legend

- Detail Area Boundary
- Railroad
- Social Trail
- Road/Parking lot
- Towpath Trail
- Sidewalk
- Building
- Canal Prism (Watered)
- Mown Lawn
- Shrubs/Grasses
- Forest
- River/Waterbody
- Fence
- 2 Foot Contours
- Bridge
- Tree
- Trail Sign
- Canal Exploration Center Sign
- Kiosk
- Wayside
- Light Post
- HVAC Unit
- Picnic Bench

Canal Exploration Center Detail Area Existing Condition

October 2022

A large asphalt-paved parking area is situated south of Hillside Road. It provides 91 standard parking spaces and 4 accessible spaces and is in good condition (see Figure 3-181). A pedestrian drop-off is provided along the eastern edge of the parking area.

Pedestrian Routes

A network of asphalt sidewalks joins the parking area, the middle and lower levels of the Canal Exploration Center building, Towpath Trail, and the comfort station (see Figures 3-182 and 3-183). The walkways are typically 5'-6' wide and in good condition. On the east side of the Canal Exploration Center building, a small wood pedestrian bridge extends across the north end of Lock 38 to access the east side of the lock and a mown grass trail to the Lock 38 spillway (see Figure 3-184). Visitors reach the train station via an asphalt-paved walkway and pedestrian bridge extending across the Cuyahoga River. The bridge connects the parking area to the train station, located on the west side of the Cuyahoga River (see Figure 3-185).

Pedestrian walkways within the detail area meet ABA standards for width, slope, and firm, stable surface except for the following locations:

- The walkway to the lower level of the CEC has a maximum slope of 7%, which exceeds the 5% maximum slope required under ABAAS. Two sets of stairs provide a secondary walkway to the lower level of the building (see Figure 3-177). Neither route is universally accessible.
- The pedestrian bridge across Lock 38 incorporates a low step and therefore does not provide a universally accessible route to the east side of the lock or the spillway.

Informal social trails lead from the west side of the parking area to the river (see Figure 3-186). The social trails access a popular fishing location but are not managed by NPS.



Figure 3-180: Towpath Trail running in front of the Canal Exploration Center (CEC) (left) and Lock 38 (right), looking north (QE, 2021).



Figure 3-181: CEC parking lot, looking southwest (QE, 2021).



Figure 3-182: Sidewalk leading upslope to the entrance of the Canal Exploration Center, looking southeast (QE, 2021).



Figure 3-183: Stairs leading to the back of the CEC, looking northeast. Power poles, utility lines, modern handrails, concrete stairs, and a generator all detract from historic character in this area (QE, 2021).



Figure 3-184: Wood pedestrian bridge crossing over Lock 38 to mown trail and lock doors, looking northeast (QE, 2021).



Figure 3-185: Pedestrian bridge connecting the train station to the CEC area and parking lot, looking east (QE, 2021).



Figure 3-186: Social trail leading from parking lot to the edge of Cuyahoga River, looking west (QE, 2021).

Canal Exploration Center Detail Area Vegetation

The Canal Exploration Center detail area is within an opening in the riparian forest along the Cuyahoga River. Public use areas around the Canal Exploration Center building, picnic area, train station, and walkway edges are maintained in mown lawn. Seven dogwood trees are aligned along the southern edge of the picnic area (see Figure 3-187). The perimeter of the parking area and a recently cleared area north of the Canal Exploration Center building are occupied by taller meadow grasses and forbs. Both the successional grassland and maintained lawn are in good condition.

Similar to other locations within the watered prism, the canal prism within the detail area is occupied by emergent wetland vegetation including reed canarygrass (*Phalaris arundinacea*), common reed (*Phragmites australis*), cattails (*Typha* spp.), bulrush (*Schoenoplectus* spp.), sessilefruit arrowhead (*Sagittaria rigida*), and carex species (*Carex* spp.) (see Figure 3-188). Wetland vegetation is densest along the east and west edges of the prism, where siltation and past vegetative growth have created a shallow shelf along the prism's sides. Early successional multiflora rose, honeysuckle, and raspberry grow along the edges of the canal prism.



Figure 3-187: Maintained lawn at the picnic area. Seven dogwood trees line the southern edge of the clearing (QE, 2021).



Figure 3-188: Emergent wetland vegetation within the canal prism south of Lock 38 (QE, 2021).

Canal Exploration Center Detail Area Buildings and Structures

Canal Structures

Lock 38 and its spillway are addressed in the Overall Study Area Buildings and Structures section of this chapter (see Figure 3-189 through Figure 3-191).

The canal prism is on the east side of the detail area between the Cuyahoga River and Canal Road (see Figure 3-192). South of the lock, the canal prism sits 5'–8' below the height of the towpath berm. North of the lock, the depth of the canal prism increases to 8'–10.' The primary issues affecting the canal prism consist of considerable silt buildup within the feature and erosion occurring during large storm events. Siltation and herbaceous vegetation increase within the canal prism south of Lock 38. Erosion is evident along steep slopes of the prism, particularly north of Hillside Road, where vegetative cover is minimal. Large rocks stabilize the terrain in this area (see Figure 3-193).



Figure 3-189: Lock 38, looking south (QE, 2021).



Figure 3-190: Lock 38, looking north (QE, 2021).



Figure 3-191: Lock 38 spillway and associated structure, looking north (QE, 2021).



Figure 3-192: Canal prism along the Towpath Trail south past Lock 38, looking south (QE, 2021).



Figure 3-193: Hillside Road bridge over canal prism, with rocks stabilizing the sides of the canal prism along each side of the bridge and continuing east along the bank near the Lock 38 spillway (QE, 2021).

Canal Exploration Center

The Canal Exploration Center building is located immediately west of Lock 38 along the Towpath Trail. It is frequently referred to as the "Lock Tender's House" in previous documentation. The building is a two-and-a-half-story Greek Revival-style building resting on a stone foundation and topped with a butterfly-gable low-pitched roof (see Figure 3-194 and Figure 3-195). It has two entryways: the main, trabeated entryway provides access to the structure's main floor from its east facade, and a service entrance accesses its lower level on the west facade. The building's HVAC system is prominent on the north side of the structure, following the removal of successional woody vegetation in early 2021. Overall, the Canal Exploration Center building appears to be in good condition.

The north half of the building was constructed ca. 1825, and the south half was added ca. 1853. Throughout the period of significance, it functioned as a residence, tavern, and store. NPS renovated the building in 1982, and it is now used as a visitor center and administrative offices.

Comfort Station

A non-historic comfort station is southwest of the parking lot near the edge of the forest. It is a single-story structure with two single bathrooms, topped by a gable metal roof that slightly extends over the entrance. A water fountain is mounted on its north facade. The comfort station is partially screened by vegetation on the east side of the building, obscuring it from view along the south segment of the Towpath Trail. It is in good condition.

Train Station

The train station consists of an open-sided pavilion with a gable roof resting on a concrete slab foundation. The structure shelters 4 rows of benches back-to-back in the center of the floor and interpretive materials mounted on the north and south walls (see Figure 3-196). The train station is in good condition.



Figure 3-194: Canal Exploration Center, west facade, looking east. (QE, 2021).



Figure 3-195: Canal Exploration Center, east facade, and main visitor entrance, looking southwest (QE, 2021).



Figure 3-196: Train station (QE, 2021).

Canal Exploration Center Detail Area Views

Views within the CEC area focus primarily on the CEC building itself, which is prominently visible from the parking lot, Hillside Road, Canal Road, and the Towpath Trail (see Figure 3-197 and Figure 3-198). Views are frequently directed to the back side of the CEC building, where visitors enter the site from the parking lot and train station.

Low vegetation adjacent to and within the canal prism also create long north–south views along the canal corridor, including visual connections between the detail area and Canal Road (see Figure 3-199). However, overhead electrical lines are conspicuous in views between Canal Road and the Canal Exploration Center building. The Knapp House, a historic structure immediately opposite the Canal Exploration Center on the east side of Canal Road, is partially visible through woody vegetation along Canal Road (see Figure 3-200). The spillway near Lock 38 is screened by dense woody vegetation, obscuring views to the feature from the Towpath Trail and CEC (see Figure 3-201).

Dense understory vegetation obscures views between the parking area and the river as well as the train station and the river, visually isolating the train station from the rest of the detail area. Visitors can experience limited views of the river from the pedestrian bridge west of the parking area or from the Towpath Trail north of Hillside Road (see Figure 3-202).



Figure 3-197: View of the canal prism and the CEC from along the Towpath Trail, looking north (QE, 2021).



Figure 3-198: View of Hillside Road, the canal prism, and Canal Exploration Center looking south (QE, 2021).



Figure 3-199: View of the Cuyahoga River north of Hillside Road along the Towpath Trail, looking northeast; riverbank stabilization utilizing vegetation can be seen along the river west of the trail (QE, 2021).



Figure 3-200: View to the Knapp House (middle left) looking east across the canal prism from the Towpath Trail, dominated by overhead electric lines (QE, 2021).



Figure 3-201: Vegetation obscures views from the Towpath Trail to the spillway structure east of Lock 38. The clump of vegetation can be seen above, looking east near Lock 38 (QE, 2021).



Figure 3-202: View of the Cuyahoga River north of Hillside Road along the Towpath Trail, looking northeast (QE, 2021).

Canal Exploration Center Detail Area Small-Scale Features

Small-scale features within the CEC detail area are contemporary additions that focus on interpretation, wayfinding, and visitor services. The site provides picnic tables, benches, bike racks, an information kiosk, trash and recycling receptacles, various trail signs, and interpretive signs and sculptures. Lighting is provided by five light posts in the parking lot. A visual motif of boxes and barrels is repeated throughout the Canal Exploration Center interpretive materials and wayfinding (see Figure 3-203). Waysides interpret historic canal operations including Lock 38, the tavern and store, and the mule train system that pulled canal boats along the canal prism. Interpretation is supported by a bronze mule statue south of Lock 38 along the trail (see Figure 3-204).



Figure 3-203: Stylized NPS sign specific for the CEC located near the train station, looking north (QE, 2021).



Figure 3-204: Bronze statue of a mule and accompanying wayside located south of the CEC along the Towpath Trail, looking west (QE, 2021).

Canal Exploration Center Detail Area Analysis and Evaluation

The landscape of the Canal Exploration Center Detail Area contributes to the overall character of the canal cultural landscape. Today, the Canal Exploration Center building (Lock Tender's House), Lock 38 and associated spillway, and the route of the historic towpath are still extant, along with the site's spatial relationships to Canal Road and the Cuyahoga River.

However, the detail area has also undergone extensive change since the canal era. Historic outbuildings and woody vegetation adjacent to the structure have been replaced with extensive modern additions to support visitor use of the site and flood control. The original vernacular design of the property, its setting within a rural agrarian landscape along the canal corridor, and the feeling of the 1800s-style mercantile and tavern have been supplanted by extensive modern developments both within the detail area and along Canal Road. Within the detail area, this includes the parking area; walkways connecting to the Canal Exploration Center building, comfort station, and railroad station; and numerous interpretive and wayfinding features. As a result, the detail area lacks historic character.

The historic character of the landscape during the period of significance is described below.

Buildings and Structures

- The residence, tavern, and store (Canal Exploration Center building) was constructed between ca. 1825 (north half) and ca. 1853 (south half). The property was owned by Nehemiah Hubbard, Jr., of Middletown, Connecticut, at the time of canal construction. There is little evidence that the house was ever used by a "lock tender," as implied by the oft-used "Lock Tender's House" name.
- Historic photographs illustrate smaller support structures north or south of the CEC building along the towpath, including a barn, privy, and possible blacksmith shop. Location and use of support buildings changed within the period of significance.

Spatial Organization and Views

- What is now the Canal Exploration Center detail area was characterized by a vernacular, utilitarian landscape during the period of significance.
- Known site features were typically oriented to the towpath and canal prism.

- The flat floodplain topography sloped slightly downhill to the west from the towpath berm; this area has since been regraded to address stormwater and flooding.
- Adjacent agricultural land use created relatively open spatial organization and views along the canal corridor, including prominent views across the canal to Canal Road. Although not included in historic photographs of the detail area, the Knapp House would have been visible across the canal and Canal Road from the house.

Vegetation

- Low herbaceous vegetation occupied the edges of the canal prism and structures during the period of significance. Scattered riparian trees including elm and black walnut were recorded on the property in early surveys. Although the surveys do not indicate their location, historic photographs indicate that trees were clustered along the towpath and at the north end of the residence, tavern, and store (Canal Exploration Center building).
- A field or barnyard was possibly located west of (behind) what is now the Canal Exploration Center building.

Circulation

- Throughout the period of significance, the towpath was the primary circulation feature within the site.
- The alignment of Canal Road is also retained from the landscape's early development. A bridge over the canal provided a connection between the road and towpath approximately 130 feet north of present-day Hillside Road. This bridge was relocated several times, including after the end of the period of significance in 1923.
- Another bridge may have been present south of what is now the detail area in 1858.

Small-Scale Features

- Consistent with the utilitarian nature of the landscape, small-scale features during the period of significance included simple hitching posts and snubbing posts and wood or wire fences.
- A photograph from 1930 (shortly after the period of significance) illustrates a possible birdhouse near the lock.



Figure 3-205: Early photograph of Lock 38 and Lock Tender's House, 1874 (CVNP 15298/6/20).



Figure 3-206: Lock 38/12-Mile Lock, 1930 (Louis Baus Canal Photograph Collection, OEC_53, The University of Akron, University Libraries Archival Services).

Boston Detail Area

The Boston Detail Area addresses the interface between the village of Boston and the canal corridor south of Lock 32. The detail area centers on the intersection of the Ohio & Erie Canal Towpath Trail and Boston Mills Road, extending north to Boston Basin and south to I-271, where most buildings, structures, and interpretive features associated with the canal are clustered. It encompasses both privately and publicly owned features within the village, including the Boston Store, Lock 32 and Lock 32 spillway, Boston Basin, and the overflow parking area. The visitor center, train station, parking lot, and proposed pedestrian bridge location on the west side of the Cuyahoga River will be addressed separately by the concurrent Visitor Use Management Plan project.

Existing condition of the Boston Detail Area is illustrated on Drawing EC-7 (see page 3.183).

Boston Detail Area Circulation

Towpath Trail

The Towpath Trail follows the historic route of the towpath north–south through the Boston Detail Area. South of Boston Mills Road, the trail is asphalt paved (see Figure 3-213). A small section of asphalt-paved trail is also located near Lock 32 (see Figure 3-214). Asphalt-paved sections of the Towpath Trail are 8' wide with a 2'–3'-wide mown grass shoulder. The asphalt pavement is typically in good condition except the short segment north of Boston Mills Road, which exhibits ruts and cracking.

The majority of the Towpath Trail north of Boston Mills Road is paved in limestone fines (see Figure 3-215). Limestone fines are applied at a width of 8'–10' along the Towpath Trail with a 1'–2' mown grass shoulder. These portions of the trail are typically in good condition.

Both the asphalt and the limestone fines portions of the Towpath Trail meet ABA surface, width, and slope standards for a universally accessible route.

Vehicular Routes

Vehicles access the Boston Detail Area via Boston Mills Road, a two-lane asphalt-paved public road (non-NPS owned) running east–west through the detail area (see Figure 3-216). Stanford Road, another two-lane asphalt road, extends north from Boston Mills Road east of the canal prism (see Figure 3-221). Both roads are in good condition. Pedestrian traffic is causing minor wear to the shoulder along Boston Mills Road.

NPS provides 7 limited mobility parking spaces in a small asphalt-paved lot. This parking area makes use of the northern half of a parking loop south of the M.D. Garage and comfort station and is in good condition. The southern half of the loop is closed to public access and slated to be removed in association with a proposed pedestrian bridge connecting from the Boston Mills Visitor Center across the Cuyahoga River.

A gravel-paved overflow parking area is located on the east side of the prism south of Boston Mills Road (see Figure 3-220). The parking lot accommodates approximately 56 parking spaces and is in fair condition. Additional parking frequently occurs on the lawn around the designed parking.

Pedestrian and Bicycle Routes

An irregular network of asphalt sidewalks extends between the limited mobility parking, Boston Store, and the Towpath Trail in the southwest portion of the detail area (see Figure 3-219). All walkways are approximately 5' wide and in good to fair condition.

On the north side of Boston Mills Road, a fair condition, 4'-wide asphalt sidewalk connects from the Towpath Trail to the building at 1565 Boston Mills Road (the former Trail Mix Store, see Figure 3-222). A short limestone fines trail extends from the Towpath Trail to an interpretive node just west of the canal prism. These routes do not connect to other features in the detail area.

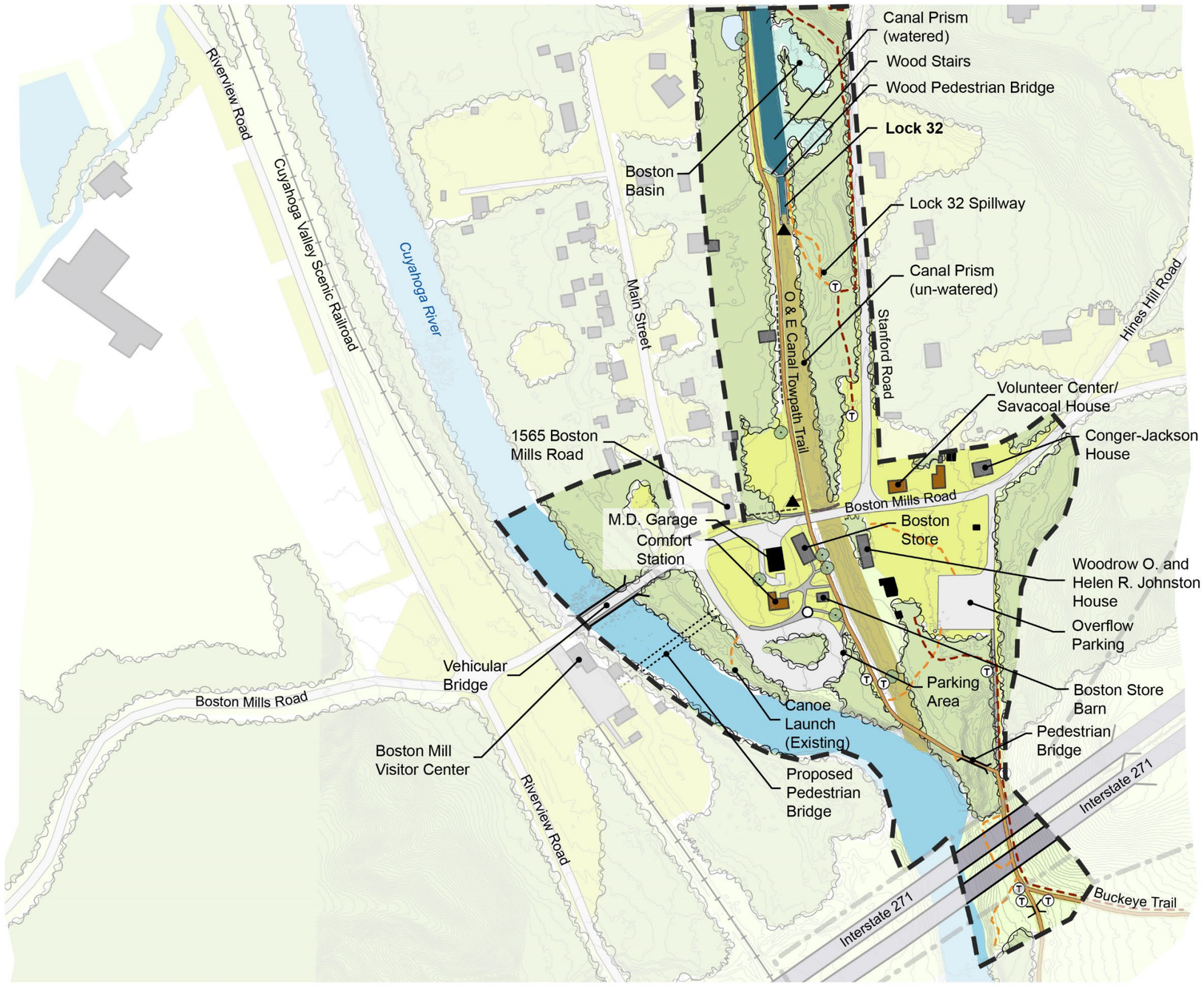
Numerous pedestrian routes also connect to amenities and trails outside of the detail area. Walkways on both sides of Boston Mills Road bridge extend a pedestrian connection to the new Boston Mill Visitor Center on the west side of the river (see Figure 3-218). However, as there are no sidewalks along Boston Mills Road that connect to the bridge, visitors use the road shoulders. A new pedestrian bridge is proposed to cross the Cuyahoga River from the Boston Visitor Center to south of the comfort station and M.D. Garage.

The Valley Trail connects from south of I-271 along the east side of the detail area (see Figure 3-223). North of Boston Mills Road, the trail continues out of the detail area along Stanford Road. The trail is not discernable between the overflow parking area and along the south section of Stanford Road. Within the Boston Detail Area, the Valley Trail is typically a bare earth or mown grass trail in good condition (see Figure 3-224).

Well-established social trails connect from the overflow parking to the Towpath Trail and Boston Mills Road and from the yards of private homes to the Towpath Trail (see Figure 3-225). At the north end of the detail area, mown grass trails extend between the canal structures and Stanford Road (see Figure 3-224). A social trail crosses over the prism between the overflow parking area and the Towpath Trail (see Figure 3-209), and another bare earth trail connects to a river access point southwest of the comfort station.

Universally accessible routes are provided inconsistently within the detail area:

- Pedestrian routes complying with ABA accessibility standards for width, slope, and surface extend between the limited mobility parking area, comfort station, the Boston Store, and the Towpath Trail. However, circulation between these features is confusing, and there is no universally accessible route from the limited mobility parking area to the M. D. Garage.
- The segment of asphalt walkway between the Towpath Trail and 1565 Boston Mills Road has an irregular surface does not meet ABA standards for a universally accessible route.
- There is no universally accessible connection between the detail area and the new Boston Mill Visitor Center on the opposite side of the river.



Legend

- Detail Area Boundary
- NPS Boundary
- Railroad
- Social Trail
- Bridle Trail
- Road/Parking Lot
- Towpath Trail
- Gravel
- Sidewalk
- Interstate
- Buildings (canal era)
- Buildings (Boston Mills HD)*
- Building (Non-contributing)
- Canal Prism (Unwatered)
- Canal Prism (Watered)
- Mown Lawn
- Shrubs/Grasses
- Forest
- Wetland
- River/Waterbody
- Fences
- 2 Foot Contours
- Lined Stones
- Bridge
- Culvert
- Proposed Pedestrian Bridge
- Trail Sign
- Kiosk
- Wayside
- Tree

Notes and Sources

1. Cuyahoga Valley National Park GIS: water bodies, vegetation, buildings, and contours.
2. USGS GIS: roads and railroads
3. Quinn Evans and SKDG field investigations, April 2021
4. *(Boston Mills Historic District)

0 125 250 500 Feet

1 inch = 250 feet

N

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Boston Detail Area Existing Condition

October 2022



Figure 3-207: Asphalt-paved section of the Towpath Trail south of the Boston Store near the I-271 overpass (QE, 2021).



Figure 3-208: Towpath Trail surface change near Lock 32, looking south (QE, 2021).



Figure 3-209: Limestone fines Towpath Trail south of Lock 32 (QE, 2021).



Figure 3-210: Boston Mills Road, looking west (QE, 2021).



Figure 3-211: Limited mobility parking area looking south from behind the Boston Store (QE, 2021).



Figure 3-212: View of the overflow parking area (QE, 2021).



Figure 3-213: View of Stanford Road, looking north (QE, 2021).



Figure 3-214: Connections between sidewalks and Towpath Trail south of the Boston Store (QE, 2021).



Figure 3-215: Sidewalks along the Boston Mills Road bridge, looking east toward the detail area (QE, 2021).



Figure 3-216: Sidewalk leading to the Trail Mix store, looking west along Boston Mills Road (QE, 2021).



Figure 3-217: Spur off the Towpath Trail that leads to the overflow parking area, utilized as part of the Valley Trail. View from the edge of the overflow parking area, looking south (QE, 2021).



Figure 3-218: Segment of the Valley Trail, looking south toward Boston (QE, 2021).



Figure 3-219: Trail leading to Lock 32 from the spillway, maintained as lawn, looking south (QE, 2021).



Figure 3-220: Social trail leading west from the Towpath Trail to adjacent private property (QE, 2021).

Boston Detail Area Vegetation

The Boston Detail Area is enclosed by riparian forest characterized by cottonwood (*Populus* spp.), sycamore (*Platanus occidentalis)*, black cherry (*Prunus serotina*), maples (*Acer* spp.), Ohio buckeye (*Aesculus glabra*), and tuliptree (*Liriodendron tulipifera*) with a dense understory of multiflora rose (*Rosa multiflora*) and honeysuckle (*Lonicera* species).

Visitor use and interpretive areas around the intersection of the Towpath Trail and Boston Mills Road are maintained in mown lawn with scattered individual canopy trees including mature maples and tuliptrees. Large cottonwoods and young to mid-aged cherry trees surround the canal prism south of Boston Mills Road (see Figure 3-226). The maintained lawn landscape is in good condition, reflecting the small-town residential character encompassing the Boston detail area.

Where the Boston Basin retains water north of Lock 32, it is occupied by emergent wetland vegetation including reed canarygrass (*Phalaris arundinacea*), cattails (*Typha* species), sedges (*Cyperaceae* species), and duckweed (*Lemnoideae* species). Boxelder (*Acer negundo*), multiflora rose, and honeysuckle occupy the margins of the basin (see Figure 3-228). During field investigations in April 2021, wetland conditions extended south approximately half the length of Lock 32.

The canal prism is overgrown with dense floodplain forest vegetation between Lock 32 and mown public areas near the intersection of Boston Mills Road and the Towpath Trail. Where the prism abuts managed lawn areas, NPS has cleared understory vegetation from the prism (see Figure 3-229 and Figure 3-230). Medium and large trees are retained within and along the prism edges.



Figure 3-221: Maintained lawn looking north from Boston Mills Road (QE, 2021).



Figure 3-222: The landscape north of Lock 32 is characterized by a Reed Canarygrass Eastern Marsh environment, seen here, looking north (QE, 2021).



Figure 3-223: The understory vegetation within the prism is cleared near areas of managed lawn, seen in the foreground above; however, the prism becomes dense in riparian forest vegetation further north toward Lock 32, as seen in the background above (QE, 2021).



Figure 3-224: View of the canal prism looking south, showing cleared understory near public areas, lined with trees (QE, 2021).

Boston Detail Area Buildings and Structures

Canal Structures

Lock 32, its associated spillway, and the Boston Basin are addressed in the Overall Study Area Buildings and Structures section of this chapter (see Figure 3-17).

The canal prism runs north–south through the center of the detail area on the east side of the Towpath Trail (see Figure 3-226). Between Lock 32 and I-271, the prism is dry. Although NPS has cleared small, woody vegetation from the prism and its shape is clearly visible and in good condition, it is not well marked and is often overlooked by park visitors. In this area, the prism is located approximately 10' below the elevation of the Towpath Trail and surrounding topography. Water is retained between Lock 32 and the Stanford Trail intersection to the north, including within Boston Basin.

The prism intersects with an eroded gully immediately north of I-271 (see Figure 3-227). South of the interstate, the prism was destroyed by grading associated with the interstate overpasses and is no longer discernable (refer to Segment 4). Near the intersection of the canal and the river, the side slopes of the prism are steep and heavily eroded (see Figure 3-229 and Figure 3-230). The canal prism is in poor condition in this area.



Figure 3-225: Lock 32, looking southeast (QE, 2021).



Figure 3-226: Canal prism on the east side of the Towpath Trail (background), growing with woody understory vegetation (QE, 2021).



Figure 3-227: Erosion at pedestrian bridge near I-271 overpass (SKDG, 2021).



Figure 3-228: Trail from overflow parking area to Towpath Trail has no drainage and poor access (SKDG, 2021).



Figure 3-229: Culvert under Towpath Trail discharges to Cuyahoga River, exacerbating bank erosion (SKDG, 2021).



Figure 3-230: Erosion along Cuyahoga River (SKDG, 2021).

Boston Store and Barn (Boston Land and Manufacturing Company Store, 1835)

Historically known as the Boston Land and Manufacturing Company Store, the Boston Store is located imminently west of the canal prism at the intersection of the Towpath Trail and Boston Mills Road (see Figure 3-231). The building is currently used by the Conservancy for Cuyahoga Valley National Park as a gift shop under a two-year lease agreement with NPS. It is a rectangular two-story Federal/Greek Revival-style structure on an ashlar stone foundation. The building has a side-gabled roof clad in wood shingles and three brick chimneys along the roof centerline. A two-story front porch with wood posts and balustrade wraps around the north and east facades of the building. There are four doors in total located on the north, east, and south facades. A ramp accesses the foundation level of the building near the south entrance. Overall, the building is in good condition.

A small barn is situated south of the Boston Store along the Towpath Trail. It is a one-and-a-half-story wood-framed structure with a gable roof. The building faces east toward the Towpath Trail and is clad in unpainted vertical wood siding. It is in good to fair condition.

M.D. Garage (1946)

The M.D. Garage is located along Boston Mills Road immediately west of the Boston Store (see Figure 3-232). It is a single-story rectangular concrete building with a flat roof and is in overall good condition. The garage provides two bays served by two sets of overhead garage doors on the north and south facades; both facades also feature an entry door. Two gas pumps, an air compressor pump, and a circular sign labeled “Be Sure with Pure” are located on the north side of the building along the road.

Volunteer Center/Savacoal House, 1920)

The park’s volunteer center occupies the historic Savacoal House, constructed in 1920 at 5795 Stanford Rd (see Figure 3-233). The building is one-and-a-half stories with a perpendicular addition on its rear east facade. It has a steep gable roof pieced by a central chimney and two shed dormers on its front west facade. Its pent-roof front porch is supported by four square posts. The house is clad in shiplap siding and asphalt shingles with a metal roof. A small red barn associated with the Savacoal House is east of the house.

Comfort Station (Joseph Dzerzyski House, 1927)

The historic Joseph Dzerzyski House, located southeast of the Boston Store, is currently occupied by administrative offices and a comfort station. It is a one-story L-shaped house with an offset gable-front entry pavilion and attached garage. The building is clad in wood siding with an asphalt shingle roof.

Conger-Jackson House (1835)

The Conger-Jackson House (located at 1509 Boston Mills Rd) is a privately owned two-story gable-front home with a shed roof wing on its west elevation (see Figure 3-234). The building is clad is in asphalt siding with an aluminum roof. The NPS has a Preservation covenant with the owners.

Woodrow O. and Helen R. Johnston House (1910)

The Woodrow O. and Helen R. Johnston House is a two-story side-gable structure located at 1538 Boston Mills Rd (see Figure 3-235). The front entrance is through a hip-roof porch located on the north facade and supported by turned posts. A second rear entrance is provided by a shed roof addition on the south facade. Since its construction, the building has been clad in aluminum siding and the foundation has been stuccoed. The house is accompanied by a non-contributing garage, a “mother-in-law house,” and corn crib.



Figure 3-231: Boston Store, looking southwest (QE, 2021).



Figure 3-232: M.D. Garage, looking south (QE, 2021).



Figure 3-233: Volunteer Center/Savacoal House, looking east. An associated red barn is behind the house (QE, 2021).



Figure 3-234: Conger-Jackson House, looking northeast across Boston Mills Road (QE, 2021).



Figure 3-235: The Boston Mills: Woodrow Johnston Farmhouse, ID 071045, looking west (QE, 2021).

Boston Detail Area Views

Dense riparian vegetation along the edges of the detail area frames views of village buildings and maintained open spaces within Boston. In particular, white and red painted structures in the core of the village are visually prominent against the backdrop of leaf-on vegetation (see Figure 3-236). However, dense riparian forest blocks visual connections between the core of the village and Lock 32, as well as views between visitor services on the east and west sides of the river (see Figure 3-237 and Figure 3-238).

Periodic breaks in the vegetation along the west side of the detail area reveal views to the river, primarily southwest of the Boston Store (see Figure 3-239). The modern interstate overpass and traffic noise from I-271 also impact the experience in these locations.



Figure 3-236: View to Boston Store looking south along the Towpath Trail (QE, 2021). During the period of significance, this area was occupied by a boat yard.



Figure 3-237: View from Lock 32 looking south toward the core of Boston. There are no visual connections between the lock and the town, caused by dense riparian floodplain vegetation as seen above (QE, 2021).



Figure 3-238: View from the new visitor center on west bank of the Cuyahoga River toward the Boston Store. During leaf-on, views will be substantially blocked by vegetation (QE, 2021).



Figure 3-239: View to the Cuyahoga River looking north. South of the I-271 underpass, vegetation thins along the riverbank, expanding visual connections to the river (QE, 2021).

Boston Detail Area Small-Scale Features

Small-scale features within the Boston detail area are contemporary additions that support interpretation, wayfinding, and visitor services. The site provides benches along the Towpath Trail and around the Boston Store, lighting along the sidewalks behind the Boston Store, bike racks, various trail signs, and two information kiosks at each parking area. An interpretive node with an interactive canal play boat sculpture and three wayside exhibits is located at the intersection of Boston Mills Road and the Towpath Trail (see Figure 3-240). Another wayside exhibit is located along the Towpath Trail west of Lock 32. The boundary between public and private property is demarked by wood fences along the Towpath Trail north of Boston Mills Road. Small-scale features are typically in good condition. However, fingerboard signs within the detail area can be difficult to read along the Towpath Trail due to their height and font selection (see Figure 3-241).



Figure 3-240: Interpretive node with a canal play boat sculpture and three waysides, looking southeast (QE, 2021).



Figure 3-241: Fingerboard wayfinding sign (QE, 2021).

Boston Detail Area Analysis and Evaluation

The Boston Detail Area contributes to the overall character of the cultural landscape. Numerous features and aspects dating to the period of significance are retained within the landscape, and modern intrusions within the village are limited.

The Boston Detail Area overlaps with the Boston Mills Historic District, which identifies 29 contributing buildings, 1 contributing structure, and 1 contributing site within the area of Riverview Road, Boston Mills Road, Main Street, and Stanford Road (see Figure 3-242). The period of significance for the village (1827–1927) varies slightly from the period of significance identified for the canal corridor in this document (1825–1913).

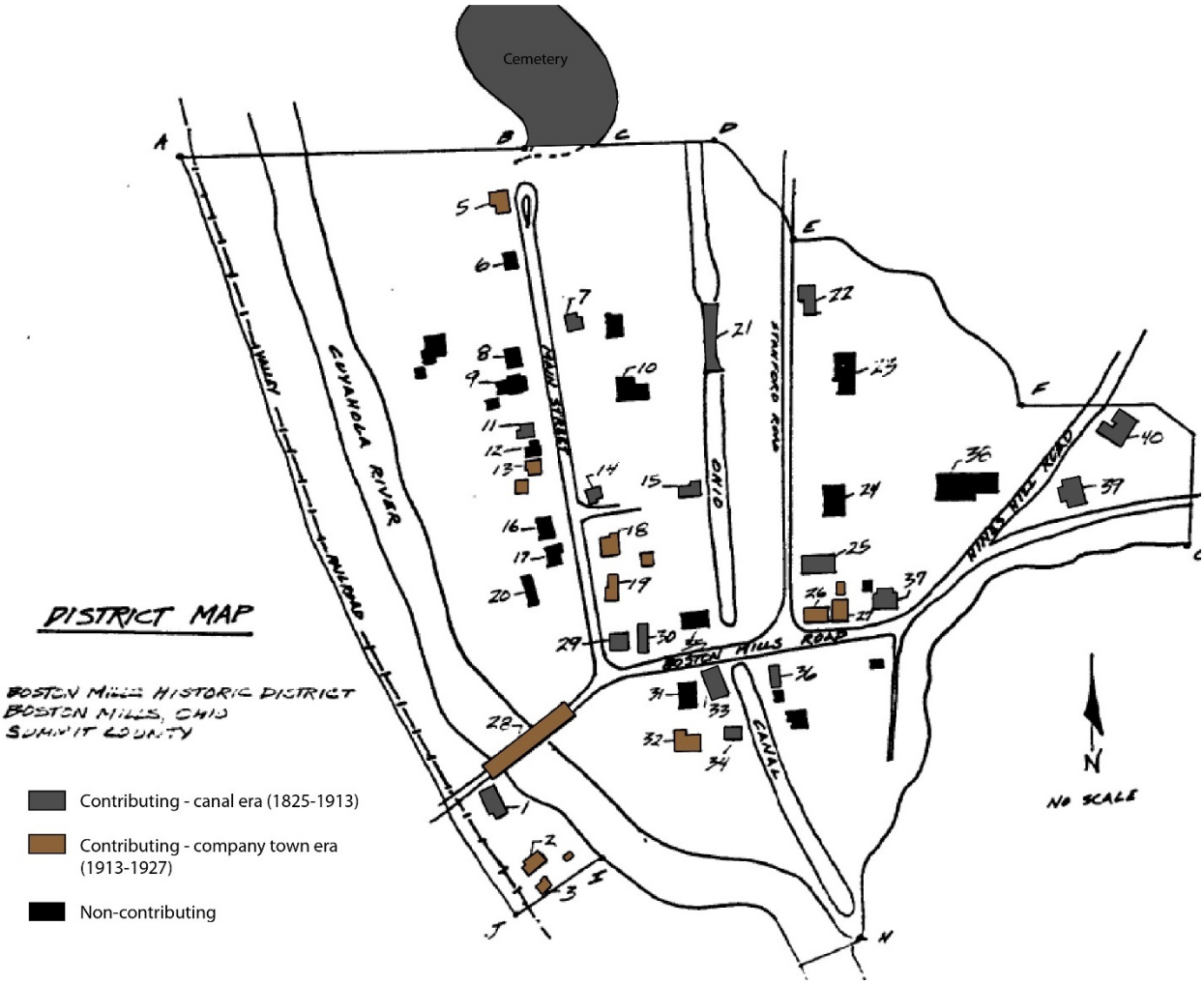


Figure 3-242: Boston Mills Historic District. Features contributing to the canal era (CLR period of significance, 1825–1913) are identified separately from those that contribute to the company town era (outside of the CLR period of significance, 1913–1927). The boundary of the detail area is identified in orange.

Contributing features within the Boston Detail Area include:

- 5841 Main Street (adjacent)
- 1571 Boston Mills Road (R.E. Wise House)
- 1565 Boston Mills Road (Square Deal Food Store)
- 1558 Boston Mills Road (Dzerzyski House—company town era)
- Boston Land and Manufacturing Store
- Boston Land and Manufacturing Store Barn
- 1538 Boston Mills Road (Woodrow O. and Helen R. Johnston House)
- 1509 Boston Mills Road (Conger-Jackson House)
- 5819 Stanford Road (S.P. Conger House—company town era)
- 5795 Stanford Road (Savacoal House—company town era)
- 5795 Stanford Road (Savacoal Barn—company town era)
- Route of Ohio and Erie Canal Towpath Trail
- Canal Prism
- Boston Basin
- Lock No. 32 and Spillway
- Views to river, historic structures, and compatible land use

Modifications since the end of the period of significance include the loss of historic buildings and circulation routes present in the historic village, the addition of new buildings constructed after the end of the period of significance, encroachment of vegetation between key historic features, and addition of numerous modern wayfinding and interpretive features.

The historic character of the landscape during the period of significance is described below.

Spatial Organization and Views

- Historic photographs of Boston illustrate a clustered settlement of one- to two-story wood-frame structures grouped along the river (see Figure 3-243). The open character of the village was supported by surrounding agricultural fields within the floodplain.
- Landscape features were typically vernacular and utilitarian.
- The canal was watered and serviced by nearby boat building operations and basins along the canal prism. Clear views extended from Lock 32 into the center of the settlement (see Figure 3-244).
- A warehouse was connected to the south facade of the Boston Store during the period of significance.

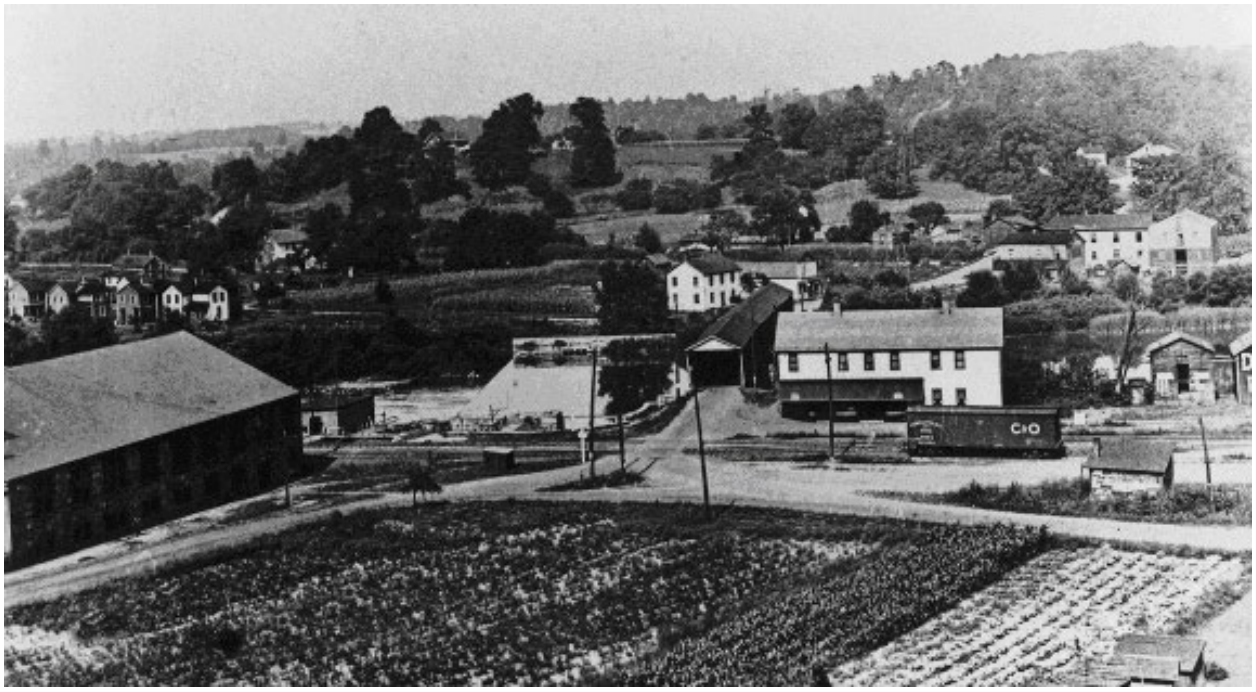


Figure 3-243: Boston from the west, 1910. The railroad and Boston Store are prominent in the foreground, adjacent to crop fields (Boston Township).



Figure 3-244: Lock 32 looking south toward Boston, 1908 (Louis Baus Photograph Collection, OEC_112, The University of Akron, University Library Archival Services).

Vegetation

- Irregularly spaced trees and informal vegetation occupied the narrow spaces between buildings and along the river's edge (see Figure 3-246 and Figure 3-247).



Figure 3-245: Irregularly spaced trees within village of Boston (undated image from Historic Landscape Analysis and Design Recommendations for Boston, Ohio, NPS, 1993).



Figure 3-246: Rough vegetation along edges of sidewalk and roads (undated image from Historic Landscape Analysis and Design Recommendations for Boston, Ohio, NPS, 1993).

Circulation

- Historic maps and photographs document narrow roads and sidewalks following roughly orthogonal alignments. Many of the modern circulation routes are in the approximate location of their historic predecessors.
- Circulation routes were characterized by irregular edges with limited impervious surface material.

Small-Scale Features

- Small-scale features were minimal and frequently directly attached to structures (see Figure 3-248).
- Utilitarian wood rail or wire fences characterized by a high degree of transparency were common within the village (see Figure 3-249).



Figure 3-247: Signage attached to Boston Mill Train Depot, 1910 (National Park Service Collection).

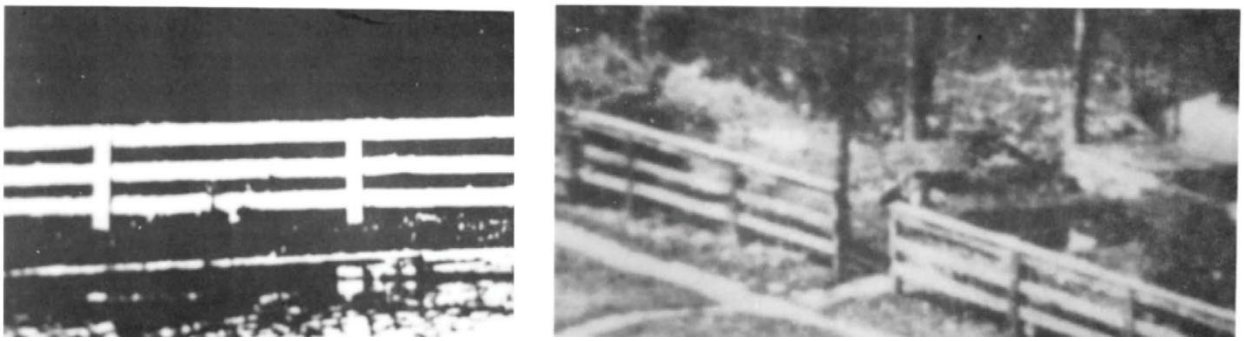


Figure 3-248: Simple wood fences along roads in the village of Boston (undated images from Historic Landscape Analysis and Design Recommendations for Boston, Ohio, NPS, 1993).

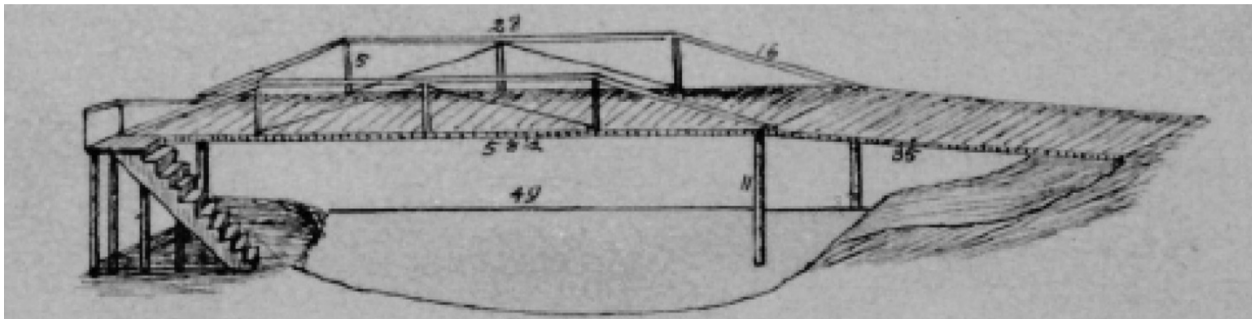


Figure 3-249: Footbridge near Lock 32, 1892 (Silliman).

Peninsula Detail Area

The Peninsula Detail Area addresses Lock 29 and its associated trailhead, remnants of the Peninsula Aqueduct, remnants of the historic grist mill, and the connection between the trailhead and the Cuyahoga Valley Scenic Railroad. The detail area is at a complicated intersection of Segment 2 and Segment 3 of the canal prism, located between the Towpath Trail, Cuyahoga River, railroad, and Village of Peninsula.

Detail area features are separated roughly northeast/southwest by the river, which cuts through Peninsula approximately 15' below the elevation of the Towpath Trail. The riverbanks create steep slopes near the aqueduct foundations, remnants of the grist mill, and west of the railroad grade. The Lock 29 Trailhead frequently floods due to its proximity to a sharp bend in the river, and bank erosion is common within the detail area, particularly south and west of the trailhead.

The railroad runs north–south along the east side of the detail area at its interface with the Village of Peninsula. A comfort station, boardwalk, and pedestrian railroad crossing are located along the railroad tracks.

Visitors access the Lock 29 trailhead from an entrance drive on the north side of the comfort station, which requires a left turn across the railroad tracks. The trailhead includes a large parking area sloping downhill to the west and a cluster of wayfinding features at its far west end.

Lock 29 and the north foundation remnant of the Peninsula Aqueduct are situated on the north side of a prominent bend in the Cuyahoga River. Visitors may walk directly into the north end of Lock 29; the base of the feature is at the approximate elevation of the west end of the parking area. Remnants of the south aqueduct foundation are visible on the south side of the river, west of the Towpath Trail. East of the Towpath Trail are ruins of a grist mill, which is separated from the Towpath Trail by a narrow watered channel.

The Towpath Trail extends northwest–southeast to the west of the Lock 29 trailhead, passing over the Cuyahoga River on a pedestrian bridge east of the lock. From the trailhead, visitors access the Towpath Trail via a ramp to the northwest or a set of wood stairs to the southeast. To accommodate the river crossing, the trail rises approximately 15 feet above the surrounding floodplain. North of Lock 29, the canal prism is on the east side of the Towpath Trail, between the trail and the river. South of the lock and aqueduct, the prism was historically present on the west side of the trail, but it is no longer visible.

Existing condition of the Peninsula Detail Area is illustrated on Drawing EC-8 (see page 3.211).

Peninsula Detail Area Circulation

Towpath Trail

The Ohio & Erie Canal Towpath Trail roughly follows the historic route of the towpath at Peninsula, although minor modifications have been made to the elevation of the trail to accommodate the loss of the original aqueduct and connections to modern trails. North of Lock 29, the trail is 8' wide, asphalt paved, and in good condition. It has a 2'–3' mown grass shoulder, which drops 10'–15' to the surrounding floodplain. At the top of the lock, the trail surface changes to fair condition limestone fines, and incorporates a 10'-by-10' bump-out for interpretive materials. The trail is transported over the north end of the lock via a short footbridge (see Figure 3-250). On the east side of the lock, the 12'-wide trail transitions irregularly between limestone fines and asphalt before crossing the river on another footbridge (see Figure 3-251). The trail surface reverts to an 8'-wide asphalt route on the south side of the river. A 70'-by-25' limestone fines-paved seating area is situated on the east side of the trail just south of the river.

Within the detail area, the trail's width and slope meet ABA standards for a universally accessible route. However, irregular conditions along the top of Lock 29, in particular where the trail transitions between pavement types, do not comply with ABA standards for a firm, stable surface. The layout of the existing trail also creates safety hazards for pedestrians and bicycles. A sharp turn where the trail passes over Lock 29 occurs in close proximity to interpretive materials, creating congestion within the enclosed space of the trail. Vegetation along the Towpath Trail north of Lock 29 also shortens sightlines.

Vehicular Routes

Vehicles access the detail area from Mill Street West, a public road in the Village of Peninsula that connects to the Lock 29 parking area. The parking area is located on the east side of the Towpath Trail and accommodates 40 standard and 2 accessible parking spaces (see Figure 3-252) arranged around a loop drive. Large vehicle spaces are located along the south edge of the lot. The parking area is asphalt paved and is in good condition.

Cuyahoga Valley Scenic Railroad

The Cuyahoga Valley Scenic Railroad runs north and south along the east side of the river. Visitors board and exit the railroad from the Peninsula Depot, which is situated on the east side of the tracks off Mill Street West.

Pedestrian and Bicycle Routes

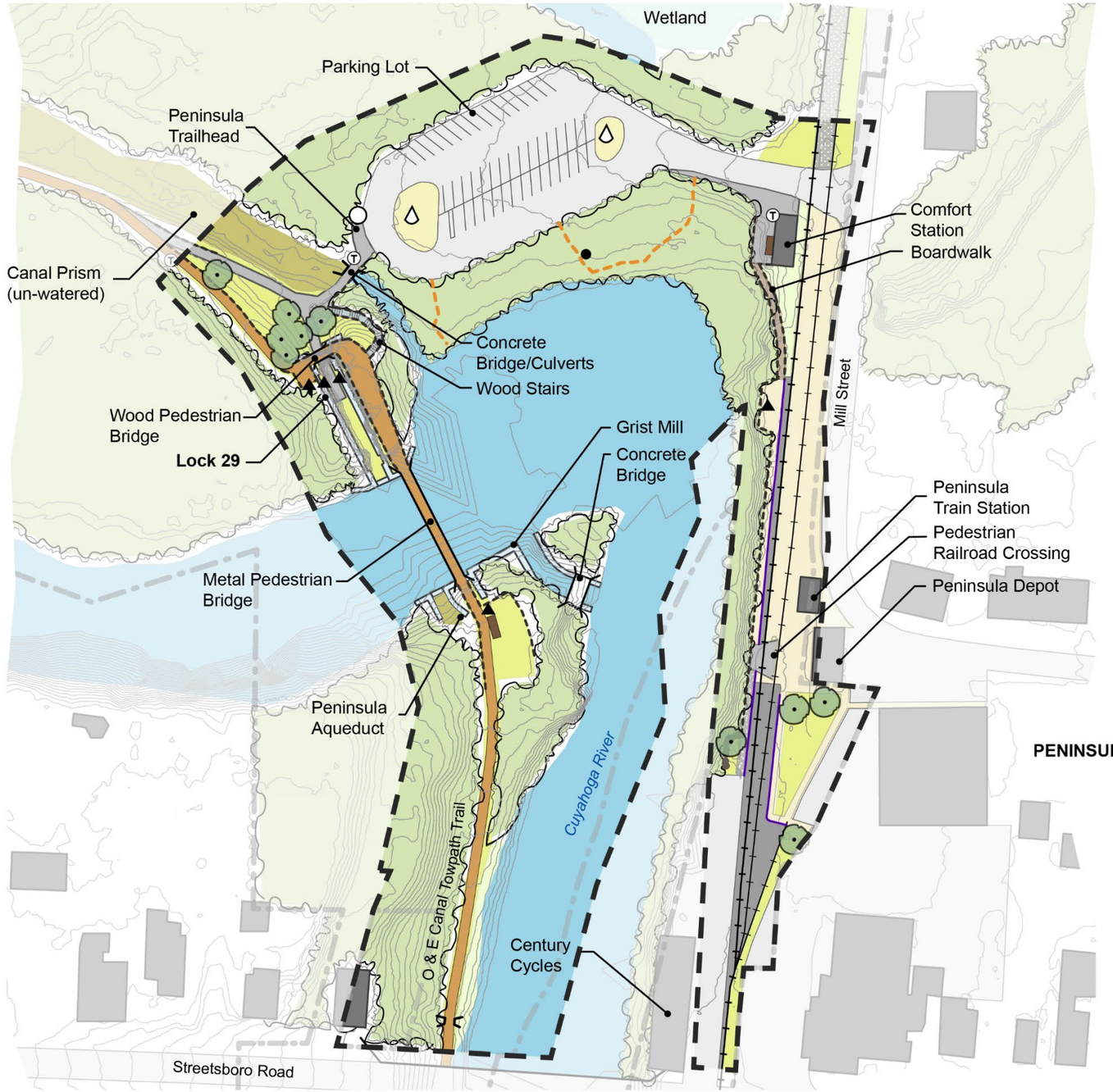
Secondary pedestrian and bicycle routes within the detail area connect between the Towpath Trail and Trailhead, and the comfort station, railroad depot, and Village of Peninsula.

At the west end of the parking area, an 8'-wide asphalt walkway connects from the Lock 29 Trailhead to the Towpath Trail (see Figure 3-254). The walkway passes over two large culverts that drain from the canal prism to the river and is in good condition. From the west side of the canal prism, visitors are presented with several circulation options. To the north, the walkway gently rises to meet the Towpath Trail, providing a route to reach the top of Lock 29. This section is also asphalt paved and in good condition. To the south, a wood stairway provides another route to the top of Lock 29. An 8'-wide poor condition asphalt walkway also extends to interpretive exhibits within the base level of Lock 29. This is the only formalized location in the park where visitors can walk into a lock.

There is no defined pedestrian walkway between the trailhead and comfort station; visitors walk directly through the parking area to reach either of these features. Social trails also extend from the parking area to the riverbank (see Figure 3-253).

On the east side of the study area, the pedestrians and bicycles merge with traffic associated with the railroad (see Figure 3-255). Circulation is split between the east and west sides of the tracks, with a single crossing over the tracks located west of the railroad depot. On the west side of the railroad tracks, a concrete pad (in fair/poor condition) at the comfort station connects to a narrow 6'-wide wood boardwalk. The boardwalk extends south along the river edge, eventually transitioning to a concrete walkway that terminates at the Century Cycles parking lot along West Streetsboro Road. The boarding area on the east side of the railroad tracks is paved in good condition limestone fines.

Pedestrian and bicycle routes within the detail area typically meet ABA standards for width and slope, except for the stairs between the trailhead and top of Lock 29. Poor condition pavement areas may no longer comply with requirements for a firm, stable surface.



Legend

- Detail Area Boundary
- NPS Boundary
- Railroad
- Social Trail
- Road/Parking Lot
- Limestone Fines Path
- Towpath Trail
- Boardwalk
- Gravel
- Sidewalk
- Buildings
- Canal Prism
- Canal Features
- Stones/Grass
- Mown Lawn
- Shrubs/Grasses
- Forest
- Wetland
- River/Waterbody
- Fences
- 2 Foot Contours
- Rope Fence
- Bridge
- Culvert
- Tree
- Kiosk
- Wayside
- Light post
- Bench
- Trail Sign
- Canoe Sign

Notes and Sources

1. Cuyahoga Valley National Park GIS: water bodies, vegetation, buildings, and contours.
2. USGS GIS: roads and railroads
3. Quinn Evans and SKDG field investigations, April 2021

0 50 100 150 Feet

1 inch = 100 feet

N

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Peninsula Detail Area
Existing Condition
October 2022



Figure 3-250: Lock 29 looking south, showing the Towpath Trail crossing over the feature and a path leading into the lock to wayside exhibits (QE, 2021).



Figure 3-251: The trail east of Lock 29 is paved in an irregular combination of limestone fines and asphalt. Ruts and standing water are common during rain events (QE, 2020).



Figure 3-252: Parking lot and trailhead east of Lock 29, looking east, with the wood stairway visible in the foreground. A large parallel parking area can be seen to the right in the background (QE, 2021).



Figure 3-253: Social trail leading to canoe launch to the bank of the Cuyahoga River, looking south, has contributed to erosion and soil compaction (QE, 2021).



Figure 3-254: Towpath Trail (right) heading uphill along Lock 29 with a ramp coming from the parking lot joining with the Towpath Trail (left). NPS has removed tall vegetation between Towpath Trail and connector trail to improve visibility (QE, 2021).



Figure 3-255: Cuyahoga Valley Scenic Railroad, looking south toward the train station and south down the trail running along the edge of the river and the railroad, seen on the right (QE, 2021).

Peninsula Detail Area Vegetation

Riparian forest dominates vegetation within the Peninsula Detail Area, edging the Towpath Trail and stabilizing steep slopes along the Cuyahoga River (see Figure 3-256). Common species include American sycamore (*Platanus occidentalis*), black cherry (*Prunus* species), cottonwood (*Populus* spp.), and maple (*Acer* spp.). At the extreme southern end of the detail area, the forest gives way to a narrow herbaceous edge between the Towpath Trail and the river. Maintained lawn is employed sparingly along the edges of the Towpath Trail and public-facing areas along Mill Street. The lawn in these locations is in good condition.

The canal prism and area along the Towpath Trail south of the pedestrian bridge are covered in dense understory vegetation beneath thick canopy cover. The understory is characterized by multiflora rose (*Rosa multiflora*), Boxelder (*Acer negundo*), sedges, grasses, reeds, and honeysuckle (*Lonicera* spp.). NPS has cleared woody vegetation from the southern end of the aqueduct, improving the feature's visibility.

A wetland borders the north side of the detail area and is visible from the parking area (see Figure 3-257).



Figure 3-256: Floodplain forest vegetation surrounding the steep banks of the Cuyahoga River, looking west from the pedestrian bridge along the Towpath Trail (QE, 2021).



Figure 3-257: Wetland north of the parking lot, looking north (QE, 2021).

Peninsula Detail Area Buildings and Structures

Canal Structures

Lock 29 and the Peninsula Aqueduct are addressed in the Overall Study Area Buildings and Structures section of this chapter (see page 3.17).

North of Lock 29, the canal prism is located on the east side of the Towpath Trail between the towpath berm and the Cuyahoga River. The prism occupies an elevation approximately 6'–8' below the trail and is discernable within the landscape except as it approaches Lock 29, where the feature is disrupted by modern walkways and grading for drainage (see Figures 3-258 through 3-260). Where present, the prism retains water and grows with dense understory vegetation that partially obscures its shape and relationship to the Towpath Trail. Rather than following its historic route through the lock, water retained within the prism drains to the river via a culvert under a walkway.

On the south side of the river, the prism was historically located on the west side of the Towpath Trail. It is no longer discernable within the detail area.



Figure 3-258: The canal prism near the Peninsula trailhead covered in dense understory vegetation and trees, looking east from the Towpath Trail (QE, 2021).



Figure 3-259: River encroachment on the Towpath Trail south of the Peninsula trailhead (SKDG, 2021).



Figure 3-260: River encroachment on the Towpath Trail west of the Peninsula trailhead has caused erosion and soil compaction along the narrow berm (SKDG, 2021).



Figure 3-261: Above Lock 29 looking north from Towpath Trail (QE, 2021). Note vegetation obscuring the bed of the aqueduct, bottom left of image.



Figure 3-262: Peninsula Aqueduct abutments, looking north from Towpath Trail (QE, 2021). Vegetation obscures the bed of the aqueduct.

Grist Mill

Remnants of the Moody and Thomas Grist Mill are limited to poor condition stone foundation walls found on the west bank of the Cuyahoga River (see Figure 3-263).

Comfort Station

The comfort station is compatible with the historic character of the landscape. It is located east of the parking area, immediately south of the parking entrance (see Figure 3-264). It is a single-story, hipped-roof building with two bathrooms and three storage/service rooms, two of which are located on the east side of the structure. The building is clad in red-painted wood siding with white trim. A water fountain and bench are attached to the west facade. The comfort station is in good condition.

Train Station

The train station consists of an open-sided pavilion with a gable roof resting on six columns over a limestone fines surface. The train station structure shelters five rows of back-to-back benches. Two wayfinding signs hang from the west side of the roof and direct visitors north to the towpath or south to the Village of Peninsula. The train station is in good condition. The station is located next to the Peninsula Depot, the only remaining historic in the depot in the valley from the original Valley Railway. The depot is used as a ticket office by the Cuyahoga Valley Scenic Railroad.



Figure 3-263: Remains of the grist mill, looking northwest across the Cuyahoga River (QE, 2021).



Figure 3-264: Comfort station is compatible with historic character of the landscape, looking southeast from parking lot entrance (QE, 2021).

Peninsula Detail Area Views

The views within the Peninsula Detail Area focus primarily on the Cuyahoga River. There is a prominent viewpoint toward the Village of Peninsula from the pedestrian bridge. The opening associated with the river also creates framed views from the village toward the bridge, aqueduct, and mill ruins. North and south of the river, views from the Towpath Trail are generally enclosed in dense vegetation.



Figure 3-265: View east from near Lock 29 toward the train station. When leaves are out this view is often obscured by vegetation (QE, 2021).



Figure 3-266: View east from pedestrian bridge across the Cuyahoga River toward the train station (QE, 2021).



Figure 3-267: View west across the Cuyahoga River looking toward the Towpath Trail bridge, revealing steep riverbanks by the grist mill and Lock 29 (QE, 2021).



Figure 3-268: View north along the Towpath Trail enclosed by dense vegetation (QE, 2021).

Peninsula Detail Area Small-Scale Features

Small-scale features within the Peninsula Detail Area are typically contemporary additions that provide interpretation, wayfinding, drainage, and visitor services. Features include benches, an information kiosk, various trail signs, trash receptacles, and culverts found along the southern segment of the Towpath Trail and at the trailhead, all in good condition. Wayside exhibits are located at various interpretive nodes across the site and are in good condition, including those found by Lock 29 and near the ruins of the grist mill. The waysides interpret the grist mill, Peninsula as a flourishing canal town, and the construction and operation of Lock 29 and the Peninsula Aqueduct (see Figure 3-269).

Wood railings and fences line steep slopes adjacent to the Towpath Trail and along the east bank of the river (see Figure 3-270). The fences are typically in good condition. Two light posts and wood bollards are located around the parking area and are in good condition. Four metal bollards surround an inground pipe near the beginning of a social trail at the north riverbank and appear to be in good condition.



Figure 3-269: Three-dimensional wayside exhibit of Lock 29 and the Peninsula Aqueduct called "A Tight Fit," found along the path in Lock 29 (QE, 2021).



Figure 3-270: Wood fences along the east bank of the Cuyahoga River (QE, 2021).

Peninsula Detail Area Analysis and Evaluation

The Peninsula Detail Area contributes to the historic character of the overall cultural landscape. Extant historic features are in their original locations and demonstrate the materials and workmanship used to construct these canal-era features. Contributing features within the Peninsula Detail Area include:

- Route of Ohio & Erie Canal Towpath Trail
- Canal prism (partial)
- Lock 29
- Peninsula Aqueduct ruin
- Mill ruin
- Dam
- Railroad depot
- Views to Cuyahoga River, railroad, and village of Peninsula

The Peninsula Detail Area includes a portion of the Peninsula Village Historic District (see Figure 3-271). Buildings and structures within the detail area that also contribute to the historic district include Lock 29, the Peninsula Aqueduct ruins, the dam, and the railroad depot. Property within the detail area is owned by NPS; the majority of the remainder of the historic district is private property.

Due to the loss of the aqueduct, mill, and iron bridge structures and the addition of numerous features to support visitor use and interpretation, the design and function of the canal during the period of significance is no longer readily apparent. Today, only ruins remain of the aqueduct, mill, and iron bridge. Visitors follow the historic routes of the Towpath Trail and railroad within the detail area; however, extensive new circulation features have been constructed to support parking and access to the historic canal. The integrity of the detail area is also impacted by views of Route 303 and associated road noise, and encroachment of vegetation on the historic prism.

The historic character of the landscape during the period of significance is described below.

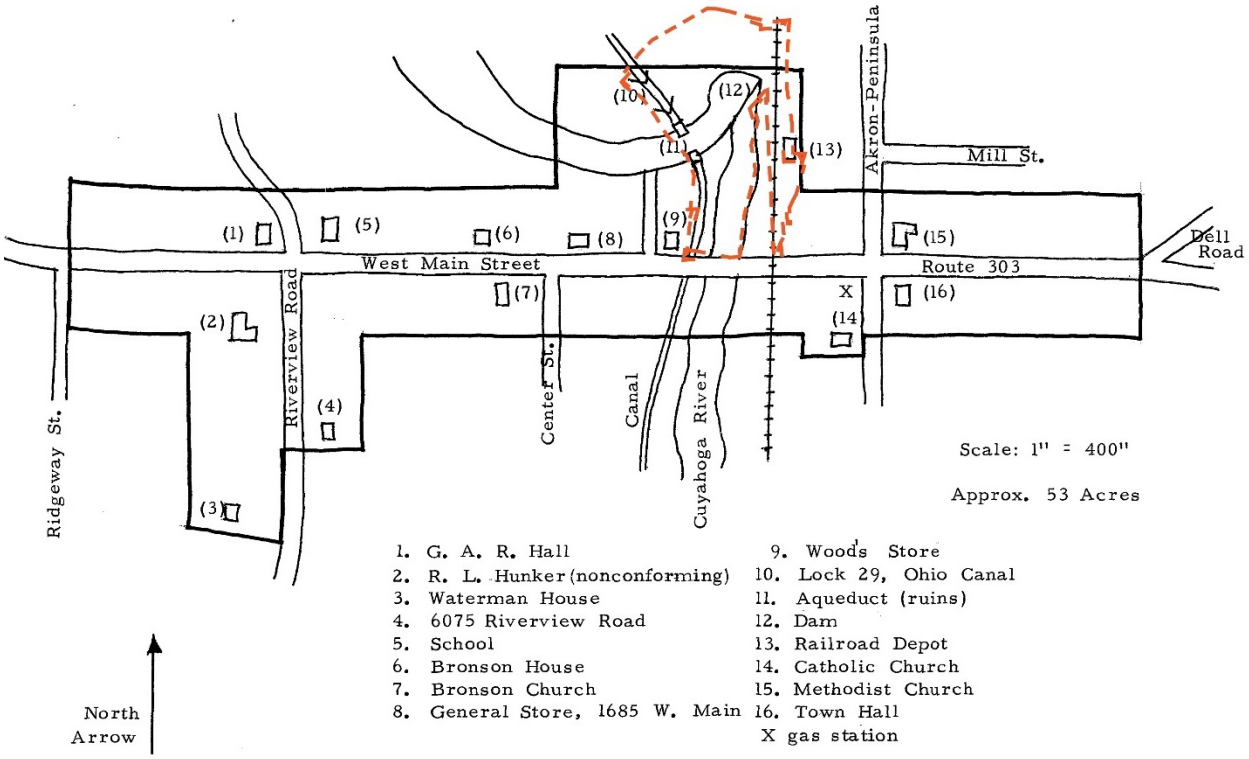


Figure 3-271: Peninsula Village Historic District. The boundary of the detail area is identified in orange.

Buildings and Structures

- In addition to Lock 29, the detail area was occupied by the aqueduct, an iron bridge, the Moody and Thomas Grist Mill, a dam across the river, and grocery or other support structures along the canal that are now missing (see Figure 3-272 through Figure 3-275). Foundations or substructures associated with the aqueduct and grist mill are retained on the landscape.

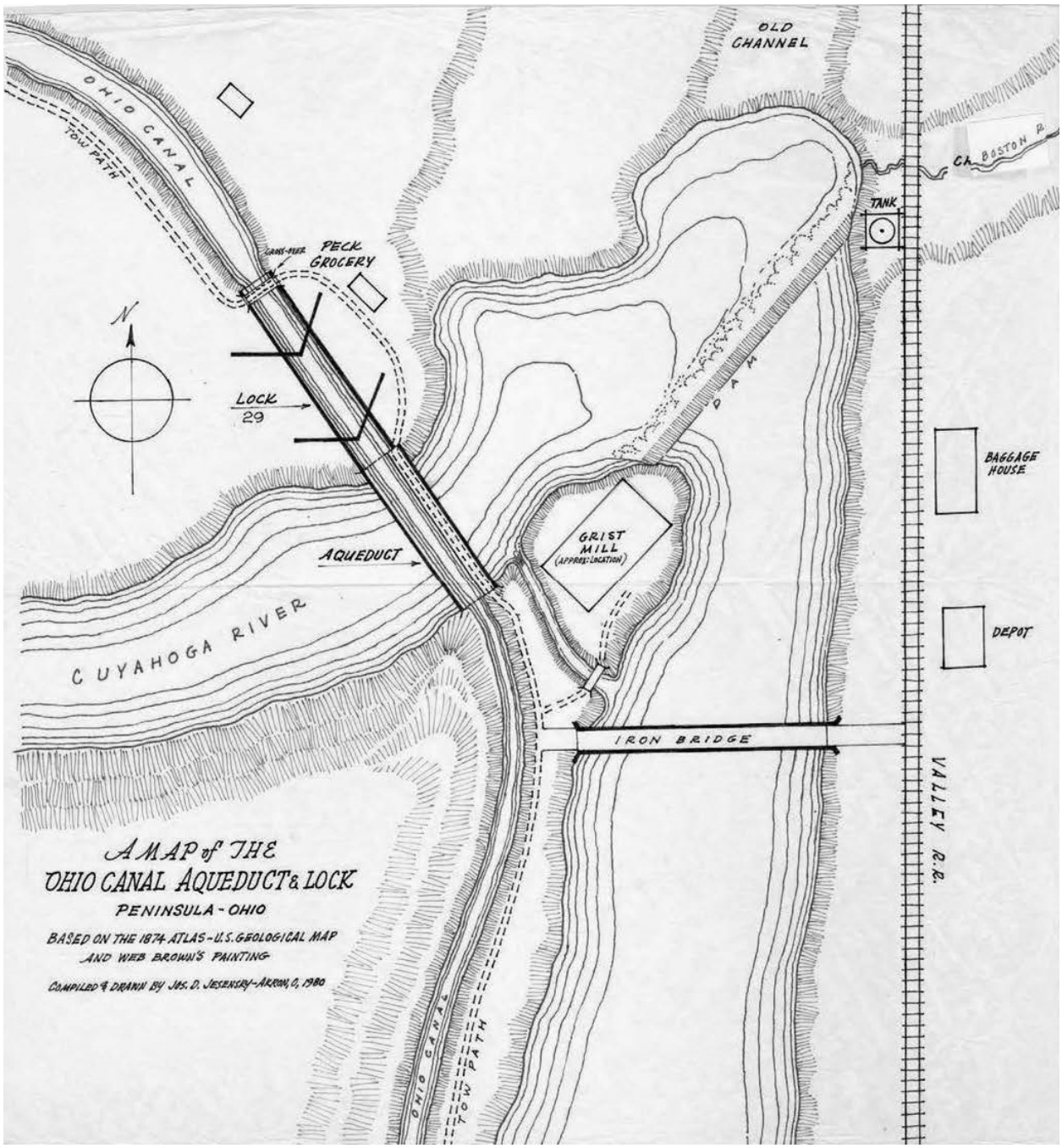


Figure 3-272: Historic Peninsula Aqueduct and vicinity map (Joseph D. Jesensky [1980]).

Vegetation and Views

- Historic photographs document dense vegetation enclosing canal corridor contrasted with expansive views across the river to the grist mill and aqueduct structures (see Figure 3-274 and Figure 3-275).

Circulation

- Circulation along the canal corridor (towpath) was oriented north–south. To adjust to the conditions of the river, the towpath switched from the west to the east side of the canal prism to ensure that the berm was always located between the prism and the river (see Figure 3-273).
- Consistent with the length of the canal corridor, the towpath was an earth-paved route with irregular edges (see Figure 3-275).
- Multiple bridges facilitated connections between the towpath and adjacent circulation routes at the grist mill and the Village of Peninsula.

Small-Scale Features

- Historic photographs illustrate simple wood or metal fences and guardrails along the bridges, aqueduct, and river edge (see Figure 3-276).
- Steep river banks were also stabilized through cut stone walls visible at the grist mill and aqueduct (see Figure 3-276).



Figure 3-273: Moody and Thomas Mill in Peninsula, viewed from railroad tracks to the east, undated. Dense vegetation enclosed the riverbanks during the period of significance (CVNP Slide 90aa).



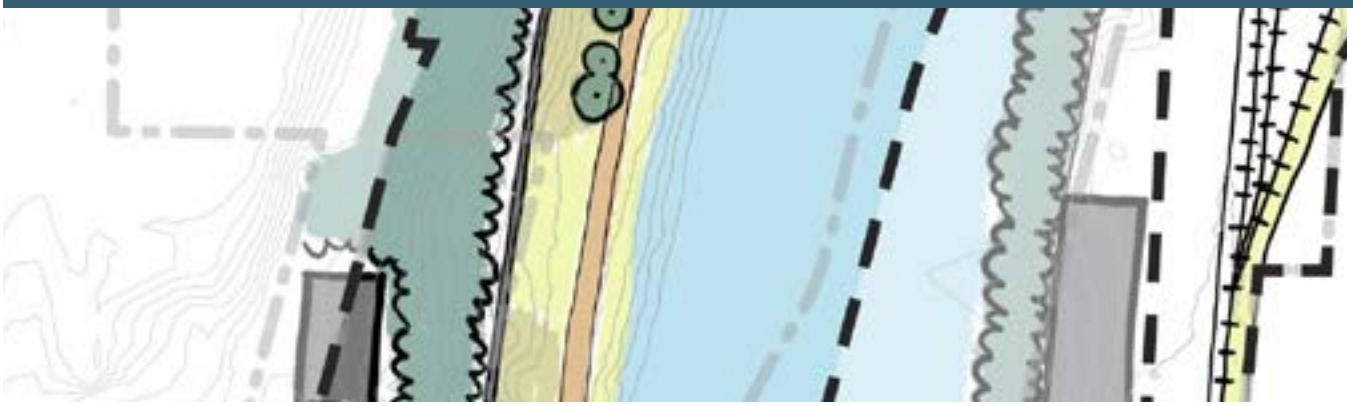
Figure 3-274: Canal corridor looking north toward Moody and Thomas Mill at Peninsula, 1902. This image illustrates vegetation enclosing the canal corridor and the rough character of the towpath south of Lock 29 (CVNP Slide 90x).



Figure 3-275: Simple wood guardrail and stone supports at the Peninsula Aqueduct, 1898 (Louis Baus Canal Photograph Collection, OEC_119, The University of Akron, University Libraries Archival Services).



04 Treatment Plan



Peninsula Detail Area Synthesis Diagram (QE, 2021).

04 Treatment Plan

Introduction

This chapter presents the recommended treatment and use for the Ohio & Erie Canal cultural landscape. The treatment recommends protection of existing canal cultural landscape components and enhancement of visitor understanding of the entire canal corridor. Treatment guidance incorporates practices that support ecological processes in support of healthy rivershed ecosystems and employs methods and maintenance actions to increase visibility of canal components. Historic landscape character and integrity are emphasized in the northern 6 miles of the study area in conjunction with the recommended National Historic Landmark expansion.

Development of the treatment recommendations was guided by a series of treatment workshops including the consulting team, Cuyahoga Valley National Park Staff, and National Park Service—Interior Regions 3, 4, and 5 staff. Landscape treatment recommendations were informed by research and analysis conducted to develop Part 1 of this CLR, recommendations from predecessor documents including the 2019 *Ohio & Erie Canal History and Historic Structures Assessment* (HRA) and 2009 *Cultural Landscape Inventory* (CLI), and guidance provided in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, *NPS Director's Order #28: Cultural Resources Management*, and the park's 2013 *Foundation Document*.[1]

The treatment plan is divided into eight sections.

1. **Landscape Treatment Issues and Considerations** lists topics related to managing and interpreting the canal corridor cultural landscape.
2. A **Vision** for the desired future condition of the landscape is stated and **Goals** for achieving the vision are defined.
3. The **Recommended Treatment Approach** describes the Secretary of the Interior's four approaches for treatment of historic properties and identifies rehabilitation as the most appropriate approach for the Ohio & Erie Canal cultural landscape.
4. The **Summary of Preferred Treatment** describes the selected long-term treatment concept for the cultural landscape.
5. **Overall Study Area Treatment Guidelines** provide broad-scale treatment guidance and treatment types applicable to the entire study area.
6. **Treatment Guidance by Segment** identifies application of the treatment types to each segment of the overall study area as well as specific treatment actions for features within the segment. Refer to Chapter 3 (pages 3.51-3.161) for the location of each of the seven segments.
7. **Detail Area Treatment Recommendations** describes individual treatment tasks to achieve the desired future condition of each detail area (refer to Chapter 3 for the location of each of the three detail areas, pages 3.162-3.232).

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[1] Heberling Associates, Inc., *Ohio & Erie Canal History and Historic Structure Assessment (*Alexandria, Pennsylvania: Friends of the Crooked River and Cuyahoga Valley National Park, 2019); National Park Service, *Ohio & Erie Canal Cultural Landscape Inventory* (Cuyahoga Valley National Park: National Park Service, 2009); Charles Birnbaum and Christine Capella Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Washington, DC: US Department of the Interior, National Park Service, 1996); National Park Service, *National Park Service Director's Orders 28: Cultural Resources Management Guidelines*, accessed December 2020, https://www.nps.gov/subjects/policy/upload/DO_28_6-11-2002. pdf; National Park Service, *Cuyahoga Valley National Park Foundation Document* (US Department of the Interior, National Park Service, 2013).

8. **Recommended Future Research** identifies collections for future review by the park based on CLR research.

Chapter 5 provides guidance for implementing treatment recommendations based on the complexity of the project and level of funding needed to move forward with the recommended treatment. Terminology defining treatment actions that are applied in the types and detail areas is provided in Appendix E.

Landscape Management Issues and Considerations

Issues and considerations affecting the desired future condition, management, and program of the cultural landscape were identified through a series of focus group meetings in early 2021 and refined through April 2021 field investigations. The treatment recommendations in this chapter address the following issues and considerations.

Circulation

1. Enhance safety and security along the canal corridor. Primary considerations include:
    a. Unmarked drop-offs into locks
    b. Relationship between trail and berm
    c. Vegetation and visibility along trail edges
    d. Traffic speed, proximity of high- and low-speed traffic along the trail, and locations for trail pull-offs
    e. Unsafe conditions caused by drainage and erosion.
2. Improve wayfinding. Treatment recommendations provide character guidance that will be integrated with the concurrent Community Access Plan (CAP) to address the following topics:
    a. Orientation to cardinal directions/local waypoints, for example north toward Cleveland or south toward Akron
    b. Identification of accessible routes
    c. Orientation at arrival points
    d. Signage within the historic landscape
    e. Connections to other trail networks.
3. Improve accessibility. Treatment recommendations identify strategies for the following topics within the context of the cultural landscape:
    a. Strategic rest stops
    b. Locations for river access and viewing
    c. Appropriate levels of access for different locations and conditions
    d. Surface treatment
    e. Steep slopes
    f. Accessible connections to other trail networks and river access
    g. Compliance with Architectural Barriers Act Accessibility Standards (ABAAS). [2]
4. Identify an appropriate towpath surface that addresses park needs related to:
    a. Historic character
    b. Maintenance efficiency
    c. Surface implications for multiple user groups
    d. Holistic consideration of towpath
    e. Locations where widening the towpath can support visitor use, safety, interpretation, and access
    f. Sustainability and drainage.

[2] Treatment recommendations for accessible routes follow the ABAAS, a set of standards issued under the 1968 Architectural Barriers Act (ABA) that apply to facilities designed, built, altered, or leased with federal funds. Note that parkwide approaches to providing barrier-free access are provided in the Community Access Plan for Cuyahoga Valley National Park. Additional information on ABAAS can be found at the US Access Board: https://www.access-board.gov/aba.

5. Improve connectivity and wayfinding along the bridle path from Station Road to Frazee.

Natural Systems, Climate Change, and Topography

1. Provide treatment recommendations to improve the role of the canal in surrounding hydrologic patterns, including:
    a. Strategies for addressing drainage and erosion problems caused by interruption of the flow of tributaries by canal prism and towpath berm
    b. Water retention, habitat creation, and management of existing wetlands within the canal prism
    c. Relationship of Brecksville pump to historic character and hydrology
2. Address erosion and flooding along the canal corridor caused by failing culverts, washouts from flooding, beaver damming, and animal burrowing.
3. Consider recommendations to coordinate with non-NPS partners that own or manage culverts passing under the canal corridor.

Vegetation

1. Provide recommendations for vegetation treatment along the Towpath Trail, including:
    a. Vegetation encroachment on the Towpath Trail
    b. Appropriate locations for mature trees.
2. Identify appropriate locations for prescribed fire within the canal corridor.
3. Consider appropriate locations where vegetation treatment may be applied as a barrier to keep visitors on the trail.
4. Provide recommendations for treatment of key viewsheds along the canal corridor.

Buildings and Structures

1. Supplement treatment recommendations in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* to mitigate impacts canal structures, caused by:
    a. Vegetation (for example, trees growing within the structures)
    b. Mowing
    c. Visitor access to structures
    d. Freeze/thaw
    e. Masonry degradation
    f. Flooding and erosion
    g. Siltation within the canal.
2. Provide recommendations for management of the watered section of the canal after pump installation in a way that protects the historic character of the landscape.
3. Provide treatment recommendations to improve visibility of historic canal structures, including low-profile basins and culverts.
4. Provide treatment recommendations for maintaining Lock 38 as a functional feature in a way that preserves historic integrity, enhances historic character, and supports interpretation and visitor safety.

Visitor Experience

1. Provide recommendations to support the concurrent CAP project crowd management and parking planning goals in a way that preserves or enhances the historic character of the landscape, for instance:
    a. Locations for trail pull-offs
    b. Trail surface condition
    c. Recommendations to support wildlife watching at Beaver Marsh, Station Road, and other locations where water is retained within the canal prism
    d. Wayfinding, safety, and river access
    e. Accessible benches.

2. Identify treatment recommendations to improve visitor experience of key views between the towpath and river and between the towpath and railroad.
3. Provide treatment recommendations that support visitor understanding of canal function and landscape significance along the entire canal corridor. Potential topics include:
    a. Canal structures
    b. Railroad features
    c. Relationship between canal prism and towpath
    d. Relationship between locks and canal
    e. Historic vegetation condition
    f. Businesses associated with the canal.

Canal Exploration Center Detail Area

In addition to the issues and considerations listed above, recommendations are needed to address the following within the Canal Exploration Center Detail Area:

1. Identify an accessible route between the Canal Exploration Center (CEC) building, parking area, and Towpath Trail.
2. Provide recommendations to address congestion and safety at the Lock 38 demonstration area.
3. Address vegetation blocking views of canal structures.
4. Enhance the view of the CEC building approach from the north along Canal Road.
5. Improve visual connections between the CEC and railroad station.
6. Address visually prominent utilities on the north side of the CEC.
7. Provide treatment recommendations for invasive vegetation along the riverbanks, canal prism, roads, and canal structures.
8. Identify character improvements to the detail area that can support the CEC as a destination for canal information and interpretation.
9. Identify if the lock should be maintained open or closed.
10. Provide options for visitor access to the lower level of the CEC.
11. Provide character recommendations for small-scale features.
12. Provide recommendations for use of the grounds as a gathering place/public amenity.
13. Evaluate options for representation/interpretation of canal boats within the detail area.
14. Identify opportunities to formalize social trails created by anglers along the river.
15. Coordinate with the CAP on vehicular circulation and river access.

Boston Detail Area

In addition to the issues and considerations listed above, recommendations are needed to address the following within the Boston Detail Area:

1. Provide treatment recommendations to enhance pedestrian experience within the detail area. Considerations include:
    a. Improved accessibility for all users.
    b. A short pedestrian loop around the lock that reduces congestion on the Towpath Trail.
    c. Improved safety along Boston Mills Road.
2. Address the relationship of the Boston Store to the canal landscape, visitor safety, and congestion.
3. Provide recommendations to enhance the historic character of vegetation within the detail area while maintaining shade trees for visitor comfort.
4. Enhance views along the Cuyahoga River, on the towpath between Boston and Lock 32, and between the detail area and the new visitor center.
5. Address safety, visitor access, vegetation, visibility, and resource protection at Lock 32 and its associated spillway.
6. Improve protection of archeological features, including inadvertent discoveries.
7. Coordinate with the CAP on traffic congestion, boat launch locations, and parking.

Peninsula Detail Area

In addition to the issues and considerations listed above, recommendations are needed to address the following within the Peninsula Detail Area:

1. Provide recommendations to address visitor access at Lock 29.
2. Improve visitor safety around the lock and mill.
3. Address the proposed service route at the southern end of the detail area.
4. Improve accessibility for all visitors.
5. Screen views of adjacent modern development.
6. Improve the line of sight north of Lock 29.
7. Provide recommendations to reestablish historic visual connections.
8. Identify opportunities to enhance visitor understanding of the history of the village, river, and canal components.
9. Enhance visibility of the mill.
10. Provide strategies to address mill race debris and river hazards.
11. Identify historic character guidelines for slope stabilization/soldier pile retaining wall.
12. Coordinate river access, congestion, parking, social trails, and visitor capacity with the CAP.

Landscape Treatment Vision and Goals

Landscape Treatment Vision

Preserve and protect the canal corridor cultural landscape and establish conditions that help visitors visualize its history and function while balancing long-term maintenance, regional recreation, and sustainability within the Cuyahoga River watershed.

Landscape Treatment Goals

Goals for landscape treatment within the Ohio & Erie Canal cultural landscape are to:

1. Provide strategies to highlight canal design and function while recognizing the need for compatibility in an ecological setting.
2. Protect and enhance integrity, condition, and interpretation of the National Historic Landmark portion of the canal corridor.
3. Provide recommendations for an appropriate towpath surface to improve historic character, increase accessibility, and facilitate long-term maintenance.
4. Improve the role of the canal corridor in the health of the Cuyahoga River watershed.
5. Provide strategies to improve ecological function and structure throughout the study area.
6. Identify appropriate vegetation treatment to enhance historic character and key views and protect canal structures.
7. Identify strategies to improve the long-term carbon footprint of the canal corridor.
8. Supplement previous documentation to address the role of canal structures in the cultural landscape.
9. Provide options to accommodate safety, security, and wayfinding for recreational users along the canal corridor.
10. Identify strategies to accommodate recreation within the National Heritage Area and provide guidance for regional canal-related preservation.
11. Improve visitor experience across all segments to better distribute visitation throughout the canal corridor.

Treatment Approach and Framework

The mission of the National Park Service (NPS) is to "preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations."[3]

The National Historic Preservation Act (NHPA) states "the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development in order to give a sense of orientation to the American people;" and "the preservation of this irreplaceable heritage is in the public interest so that its vital legacy of cultural, educational, aesthetic, inspirational, economic, and energy benefits will be maintained and enriched for future generations of Americans."[4] The NHPA requires each federal agency to establish a "preservation program for the identification, evaluation, and nomination to the National Register, and protection, of historic property."[5] Section 106 of the NHPA requires federal agencies to consider the effects on historic properties of projects they carry out, assist, fund, permit, license, or approve. Regulations published by the Advisory Council on Historic Preservation (ACHP) guide federal agencies and other participants in the Section 106 process.[6] "The Secretary of the Interior's Standards for the Treatment of Historic Properties are common sense historic preservation principles in non-technical language. They promote historic preservation best practices that will help to protect our nation's irreplaceable cultural resources."[7]

Recommended Treatment Approach

The US Secretary of the Interior provides professional standards and guidance for the preservation treatment of historic properties listed in or eligible for the National Register of Historic Places. Four approaches to the treatment of historic properties are defined, including preservation, restoration, rehabilitation, andreconstruction. The most appropriate approach for the study area is rehabilitation.

Rehabilitation – Recommended Approach

Rehabilitation allows repairs, alterations, and additions necessary to enable a compatible use for a property, as long as the portions or features which convey the historical, cultural, or architectural values are preserved.[8]

Based on the current condition and goals for future condition and use, rehabilitation is the most appropriate treatment approach for the study area landscape. This approach provides an umbrella that preserves or restores canal structures while rehabilitating vegetation patterns to reinforce period character and adding features to support visitor experience and interpretation.

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[3] "About Us," *National Park* Service, accessed at https://www.nps.gov/aboutus/index.htm.

[4] Section 1 of the National Historic Preservation Act, Public Law No. 89-665, as amended by Pub. L. No. 96-515: (b) (2) and (4).

[5] Public Law No.89-665, as amended by Public Law No. 96-515, Section 306102 (a) and (b); NHPA Section 110 Guidelines (53FR 4727-46) and 36 CFR Part 800 – Protection of Historic Properties, https://www.achp.gov/sites/default/files/regulations/2017-02/regs-rev04.pdf.

[6] 36 CFR Part 800 – Protection of Historic Properties, 36CFRPart800_as_amended2004_web.doc (achp.gov).

[7] "The Secretary of the Interior's Standards-Technical Preservation Services, National Park Service," National Parks Service, U.S. Department of the Interior, https://www.nps.gov/tps/standards.htm.

[8] *The Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes*, accessed August 2020, https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/index.htm.

Under this approach, features that are not compatible with the historic character of the property may be removed. New elements that are compatible with historic conditions may be added to address current needs, such as improving accessibility, screening adjacent modern development, and improving ecological function and structure throughout the study area. Design of these elements requires careful consideration to provide additions that complement the historic features without creating a false sense of history.

Preservation

Preservation is the act of sustaining the existing form, integrity, and materials of a historic property. This approach is most appropriate for properties that have a high level of integrity and often includes presence of features or conditions from multiple time periods.[9] Although preservation is an appropriate treatment approach for the study area cultural landscape, preservation limits the ability to make changes and accommodate expanded use and interpretation identified by this and previous planning documents.

Restoration

Restoration is the process of depicting the form, features, and character of a property as it appeared at a particular period in time. Elements that relate to earlier or later periods are removed in order to clearly represent one time period. A high level of documentation is necessary to ensure that the site accurately represents the historic period.[10]

Although restoration may be suitably applied to select historic landscape features within the study area, it is not the most appropriate overall approach for the canal corridor. There is not adequate documentary evidence to restore the landscape of the entire 22-mile-long study area to represent the period of significance. Numerous changes occurred within the landscape during the period of significance, particularly to canal structures and vegetation, and it would not be appropriate to remove extant elements from other historical periods to restore the landscape to a particular period of time. Current maintenance and user needs also require features not present during the historic period.

Reconstruction

Reconstruction is the act of using new construction to depict a non-surviving site, landscape, building, structure, or object as it appeared at a specific period of time in its historic location. This approach is used only in landscapes with the highest level of significance where detailed documentation exists regarding the historic conditions of the property.[11]

Reconstruction is not the most appropriate treatment approach for the study area because adequate documentary evidence does not exist to reconstruct the entire study area to represent the period of significance, particularly given the continued development of vegetation and modification to canal structures within that period. In addition, it would not be feasible to manage the entire area to represent one period of time, and current and desired use of the canal corridor requires features not present during the historic period. A rehabilitation approach allows for the reconstruction of selected features.

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[9] *The Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscape*s, accessed August 2020, https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/index.htm.

[10] *The Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes*, accessed August 2020, https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/index.htm.

[11] *The Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for the Treatment of Cultural Landscapes*, accessed August 2020, https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/index.htm.

Standards for Rehabilitation

The Secretary of the Interior's Standards for rehabilitation are as follows. Refer to the Guidelines for Rehabilitating Cultural Landscapes for an explanation of application of the rehabilitation standards to cultural landscapes.[12]

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations or related new construction will not destroy historic materials, features and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.[13]

Summary of Preferred Treatment Concept

The preferred treatment concept balances increasing visibility of canal components throughout the 22-mile-long study area with changing ecological and hydrological processes within the watershed.

In the "unwatered" sections of the canal (segments 1–5), the preferred treatment concept emphasizes improving understanding of the function and spatial relationships of canal components. Concrete and stone structures are preserved, while earthen structures (including the prism and basins) are rehabilitated to enhance their visibility. The treatment proposes retaining water within the prism where possible, particularly to support creation of vernal pools. Water retained within the prism will not only evoke the historic character of the landscape, but also provide valuable amphibian habitat and support stormwater retention. In locations where the prism will not support water retention, the treatment concept

[12] National Park Service, "Guidelines for Rehabilitating Cultural Landscapes: The Approach," accessed December 2021, https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/rehab/approach.htm.

[13] National Park Service, *Guidelines for Rehabilitating Cultural Landscapes: Standards for Rehabilitation*, accessed February 2020, https://www.nps.gov/tps/ standards/four-treatments/landscape-guidelines/rehab/index.htm.

recommends management of invasive species to improve visibility of the canal prism and berm and promote ecosystem health.

Due to changing climate and hydrological conditions, there are locations within the "unwatered" portions of the canal where movement of the Cuyahoga River will continue to erode the historic berm and towpath route. To address this threat, the treatment recommendations identify priorities for protection of canal resources threatened by natural hydrological processes and recommend development of a long-term river management plan.

The appearance and condition of the surface of the towpath is critically important to landscape treatment. The appearance of the towpath trail plays a major role in the historic character of the study area. The condition of the towpath trail directly affects the safety of its users. The recommended visual appearance of the towpath is rustic, with irregular rather than crisply defined edges, a coarse rather than smooth texture, and an earth-toned color. A surface that is consistent is critical. Chip seal is the recommended surface for the Towpath Trail throughout the study area to support maintenance and recreational use while visually representing the historic character of the towpath. This surface has been selected as one that, when carefully maintained, has the appearance of a crushed stone surface and the durability of asphalt. To meet the goals stated, the surface must be routinely maintained with a stone surface layer that covers the base and does not allow loose gravel beyond ABAAS standards for accessible surfaces.

Where the berm associated with the towpath is missing, the trail will follow its historic route over a boardwalk. An alternate color chip seal surface is recommended to identify portions of the trail that deviate from the historic route of the towpath.

Where canal components are no longer extant (segments 1 and 4), the treatment plan recommends tasks that support referencing missing canal features and relationships through interpretive landscape elements. Ecosystem health is prioritized for the vegetation and hydrologic conditions in these locations.

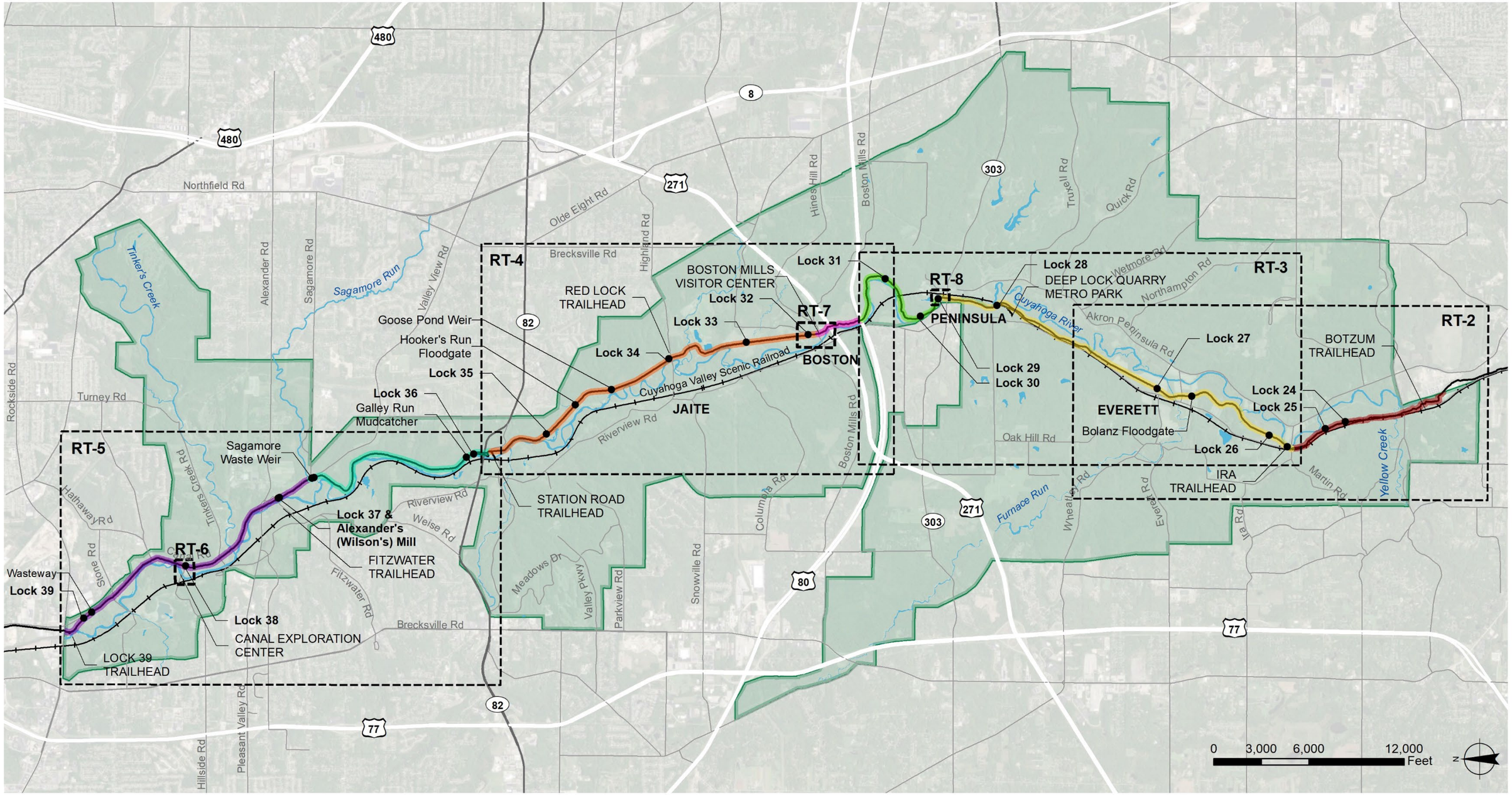
Within the "watered" section of the canal (segments 6 and 7), the treatment plan recommends updating the National Historic Landmark nomination to address the entire cultural landscape from Lock 36 to Lock 39. The historic condition of the landscape is emphasized to enhance integrity, condition, and interpretation. Concrete and stone structures including the locks, spillways, waste structures, and the mudcatcher are rehabilitated to support the planned installation of a pump to actively water this section of the canal prism. Rehabilitation of earthen structures including the berm and prism is also recommended, including protection of the berm in locations where the Cuyahoga River is causing erosion and destabilization.

Similar to the "unwatered" portions of the canal corridor, the Towpath Trail surface represents the historic character of the towpath while providing a firm, stable surface for visitor and maintenance use. Historic vegetation patterns are represented within these segments while accommodating trees along the margins of the corridor for shade. Recommended treatment is illustrated on RT-1 (see page 4.11)

Overall Study Area Treatment Guidelines

Treatment Guidelines provide broad-scale strategies for addressing issues that affect the entire study area and general recommendations for protecting the character of the cultural landscape when compatible modifications are necessary to support future needs. Treatment guidelines are organized by landscape characteristic and illustrated by diagrams.

The scale of the project area and variety of conditions present throughout it result in a range of potential types of treatment that are appropriate to correct particular conditions. These guidelines identify a range of types of treatment for various conditions and explain the parameters for their application. This allows for park managers to choose the most appropriate applications for specific situations throughout the study area. Included within the guidelines are treatment types identified for repeated conditions along the canal corridor to support application of the overall treatment concept by providing choices for types of treatment to be applied as conditions change. In this way, the treatment recommendations will support decision-making beyond the initial application. Treatment type locations are identified by segment in the next section of the chapter (starting on page 4.57).



Legend

Boundaries
- CVNP Boundary
- Recommended Treatment drawing
- Detail Area drawing

Natural Systems
- River, Stream, or Pond

- Study area: Segment 1 (see EC-2)
- Study area: Segment 2 (see EC-3)
- Study area: Segment 3 (see EC-3)
- Study area: Segment 4 (see EC-4)
- Study area: Segment 5 (see EC-4)
- Study area: Segment 6 (see EC-5)
- Study area: Segment 7 (see EC-5)

Buildings and Structures
- Lock or Waste Structure

Circulation
- Ohio and Erie Canal Towpath Trail
- Local Connecting Road
- Highway
- Railroad

Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.

Cuyahoga Valley National Park Ohio & Erie Canal
Cultural Landscape Report

Study Area Recommended Treatment Drawing Key

NPS No. CUVA 644 177149 **RT-1**

Overall Study Area Spatial Organization Guidelines

Guidelines for spatial organization emphasize enhancing visibility of canal components and historic spatial relationships while screening views along the canal corridor from modern intrusions. Spatial organization guidelines are closely related to the Overall Study Area Natural Systems, Climate Change, and Topography Guidelines; Overall Study Area Vegetation Guidelines; and Overall Study Area Visitor Experience Guidelines.

- Preserve contributing spatial relationships along the canal corridor by maintaining the existing patterns and relationships associated with contributing spatial organization.
    - Contributing spatial organization includes:
        - The overall north–south linear arrangement of the canal prism, berm, Towpath Trail, and associated canal structures;
        - Relationships between the canal corridor and towns along its route;
        - Relationships between the canal corridor and local roads following historic routes; and
        - The relationship between the canal corridor and the Cuyahoga River.
    - Avoid removing or relocating contributing features, thus destroying or diminishing the historic relationship between the landscape and these features.
    - Avoid allowing spatial organization to be altered through incompatible development or neglect.

- When new additions are necessary to support visitor and administrative use within the study area, arrange new features to retain the historic spatial organization.
    - Design new features to fit within the scale, size, design, materials, color, and texture of historic elements to which the new feature will be spatially related.
    - Place new features within the existing topography to minimize the visual appearance of added elements.
    - Differentiate new additions from contributing features to avoid creating a false sense of history while ensuring the new elements are compatible with the historic character of the site.

- Enhance visibility and visitor understanding of canal components and function by rehabilitating spatial relationships throughout the canal corridor. Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines; Overall Study Area Vegetation Guidelines; and Overall Study Area Visitor Experience Guidelines.

Overall Study Area Buildings and Structures Guidelines

Treatment recommendations for the corridor's canal structures use the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* as a basis for protecting the concrete, stone, and earthen canal components throughout the study area. The recommendations add a cultural landscape lens to ensure that recommendations are aligned with a rehabilitation approach as defined by the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and incorporate strategies for addressing vegetation, views, and visitor experience not incorporated into previous guidance.

Additional recommendations are provided for existing buildings and structures within the canal corridor, including character recommendations for facilities that may be needed to support visitor use or administration within the canal corridor in the future.

Canal Structures

- Preserve concrete and stone structures in the "unwatered" section of the canal corridor.
    - Follow guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for immediate and long-term preservation of concrete and stone structures.[14]
    - Remove vegetation from vertical and horizontal surfaces of concrete and stone structures.
    - Remove woody vegetation with roots that may impact structures from margins of structure. Maintain mown turf or other low herbaceous vegetation around and within structures and maintain a minimum 10' between structures and woody vegetation.
    - Allow water to be retained within concrete and stone structures in the "unwatered" section of the canal corridor. Refer to Overall Study Area Natural Systems, Climate, and Topography Guidelines.
    - Stabilize concrete surfaces by repairing cracks and spalls. Where horizontal surfaces require extensive stabilization, work with architectural conservator and structural engineer to identify appropriate treatment.
    - Continue to evaluate performance of concrete caps at Locks 26, 30, 31, and 32.
    - Install signs, barriers, or railings compatible with the historic character where safety improvements are required. Limit new barriers and railings to specific locations where features have high drop-offs and low visibility, for example Ira Culvert, or where visitor use is significantly impacting the structure. Minimize the addition of signs and other features to avoid cluttering the landscape. Refer to Overall Study Area Small-Scale Features Guidelines.
    - Refer to treatment recommendations for segments 1 through 5 for additional detail.

- Rehabilitate earthen structures in the "unwatered" section of the canal corridor.
    - Preserve the historic character of the canal prism and basins, including the overall dimensions and shape and physical relationships to other canal components.
    - Improve the visibility of the prism and basins through retained water and vegetation management, following Overall Study Area Natural Systems, Climate Change, and Topography Guidelines and Overall Study Area Vegetation Guidelines.
    - Routinely remove modern intrusions such as architectural debris (remnant lumber, plywood, scrap metal, concrete, brick, or other discarded construction and demolition materials), signage, and fencing; relict drainpipes and posts; hazardous trees; and general trash.
    - Routinely monitor the prism and berm for damage caused by windthrow and animals. Repair according to guidance for rehabilitation in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

[14] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 535-541.

  - Undertake an interdisciplinary long-term river management plan focused on the hydrology, erosion, and vegetation associated with the Cuyahoga River in the area. Within that plan, consider if allowing the Cuyahoga River to erode the towpath berm in limited locations along the "unwatered" section of the canal would ultimately be beneficial both to the long-term preservation of the overall canal corridor and to the ecological systems associated with it.
  - Refer to treatment recommendations for segments 1 through 5 for additional detail.

- Rehabilitate concrete and stone structures in the "watered" section of the canal corridor.
  - Follow guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for restoration and maintenance of locks 37, 38, and 39.[15]
  - Rehabilitate waste structures to return these features to a state of utility, following guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for preservation of existing components of the feature.[16]
  - Install signs, barriers, or railings compatible with the historic character where safety improvements are required. Limit installation of compatible railings, barriers, and signage to locations where features have high drop-offs and low visibility or where visitor use is significantly impacting the structure. Minimize the addition of signs and other features to avoid cluttering the landscape. Refer to Overall Study Area Small-Scale Features Guidelines.
  - Refer to treatment recommendations for segments 6 and 7 for additional detail.

- Rehabilitate earthen structures within the "watered" section of the canal corridor.
  - Maintain the prism, Pinery Feeder, and two basins to support their function as active waterways and their appearance consistent with the period of significance.
  - Regularly dredge to preserve the historic form and dimensions of the features. Frequency of dredging will be dependent on the amount of silt and sediment settling within the prism. The canal prism was constructed to generally have a bottom width of 26 feet and a depth of 4 feet. At a minimum, dredge the watered prism often enough to prevent vegetation from growing in the prism bottom and maintain an approximate depth and width consistent with the historic condition.
  - Allow limited wetland vegetation to remain along the edges of the features to support ecological function of the waterways. Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines and Overall Study Area Vegetation Guidelines.
  - Monitor the banks of the canal annually and after any event with potential to impact the berm for leaks and damage caused by weather events and animals. Repair following guidelines for preservation in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.
  - Stabilize the banks of the Cuyahoga River and the towpath berm to maintain the berm and prism in their historic locations. Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines.
  - Refer to treatment recommendations for segments 6 and 7 for additional detail.

Buildings

- Preserve contributing buildings and structures within the canal corridor.
  - Contributing buildings within the study area include:
    - Alexander's (Wilson's) Mill

[15] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 542.

[16] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 543-546.

        - Canal Exploration Center
        - 5841 Main Street (adjacent)
        - 1571 Boston Mills Road (R.E. Wise House)
        - 1565 Boston Mills Road (Square Deal Food Store)
        - 1558 Boston Mills Road (Dzerzyski House - company town era, now used as comfort station)
        - Boston Land and Manufacturing Store
        - Boston Land and Manufacturing Store Barn
        - 1538 Boston Mills Road (Woodrow O. and Helen R. Johnston House)
        - 1509 Boston Mills Road (Conger-Jackson House)
        - 5819 Stanford Road (S.P. Conger House—company town era)
        - 5795 Stanford Road (Savacoal House—company town era)
        - 5795 Stanford Road (Savacoal Barn—company town era)
    - Preserve and maintain buildings and structures by use of non-destructive methods and daily, cyclical, and seasonal maintenance.
    - Repair buildings and structures by reinforcing historic materials. Do not replace a contributing building or structure when repair is possible.
    - Do not remove a contributing building or structure that is deteriorated and not replace it.
    - Do not replace a contributing building with a new feature that does not convey a visual appearance consistent with the historic character of the site.
    - If replacement of a deteriorated building or structure is necessary, design the new structure using existing physical evidence of the scale, form, material, and detail of the original structure so that the replacement is compatible with the historic character of the landscape.

- If new buildings, structures, or additions are necessary to support park use, design the new construction to be compatible with the historic character of the landscape and conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties.
    - Site new facilities to avoid impacts to historic materials, features, and spatial relationships that characterize the property. Ensure that the location, design, and construction of new facilities and systems are subordinate to the surviving cultural and natural landscape.
    - Avoid adding conjectural buildings or structures that were not present historically and may create a false sense of history.
    - Site new construction outside of contributing views.
    - Design new facilities to sit lightly on the landscape. Construct any new additions in such a manner that, if removed in the future, the integrity of the cultural landscape would be unimpaired.
    - Design any new buildings and structures to be compatible with regional vernacular architectural traditions.
        - Incorporate materials and finishes that reflect the palette of contributing buildings and structures, including local stone, brick, and painted vertical or clapboard siding, and simple wood decorative detailing. Refer to Figure 4-1 through Figure 4-5.
        - Select scale, massing, form, and detailing for new facilities that is compatible with the study area's contributing buildings and structures.
        - Differentiate new additions from historic features.
    - Consider the long-term maintenance and life-cycle costs of materials selected for new design and construction within the study area. Prioritize materials that are durable, low-maintenance, and environmentally sustainable.



Figure 4-1: Local stone foundation and white-painted clapboard siding at Canal Exploration Center building (QE, 2021).



Figure 4-2: Brick construction at Frazee House adjacent to the canal corridor (QE, 2021).



Figure 4-3: Painted vertical siding at Boston Mill Train Depot, 1910 (National Park Service Collection).



Figure 4-4: Multiple painted siding types at Alexander's (Wilson's) Mill (QE, 2021).



Figure 4-5: Simple wood detailing at Boston Store (QE, 2021).

Overall Study Area Circulation Guidelines

Circulation treatment recommendations provide guidance for representing the historic character of the Ohio & Erie Canal Towpath Trail while meeting the needs of multiple user groups and maintenance considerations. Additional recommendations are provided for the character of routes connecting to the Towpath Trail, including trailheads and adjacent trail systems. To improve safety along the canal corridor, the circulation guidelines propose a limited palette of surface materials that reduces the number of transitions between different surface types.

Ohio & Erie Canal Towpath Trail

The circulation guidelines present three recommended surface treatments for the Ohio & Erie Canal Towpath Trail, based on whether the existing trail is in the location of the historic towpath and the presence of the associated towpath berm. Application of these three types is illustrated in the individual segment drawings in the next section of the chapter (RT-2 through RT-5, on pages 4.59, 4.63, 4.69, and 4.81, respectively). Maintain the historic route of the Towpath Trail wherever possible along the length of the canal corridor, including where the route no longer occupies its associated berm.

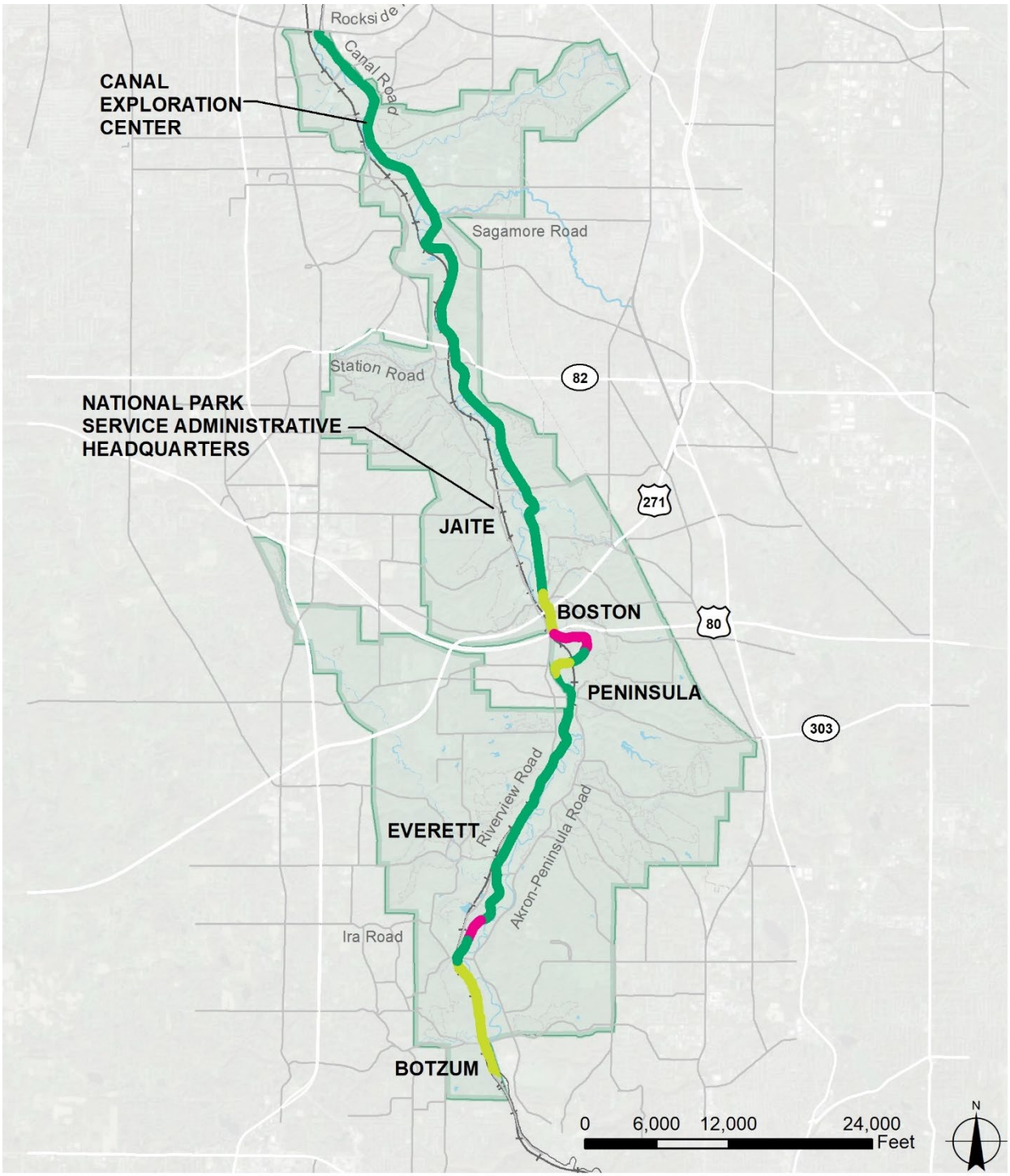
The following conditions characterized the towpath route during the period of significance, and are important for maintaining the character of the towpath in future treatment:

- Dry, durable earth surface
- Approximately 10 feet wide (actual dimensions were frequently larger)
- Irregular edge, with period two-track character
- Graded so that the outside edge was 6” lower than the inner edge so that the surface drains to the river
- Varied shoulder width.

Historic conditions are illustrated on Figure 4-8 and Figure 4-9. Although neither limestone fines nor chip seal were present during the period of significance along the towpath, both surfaces can effectively emulate the historic character of the 10-foot-wide earth surface with an irregular edge (see Figure 4-7 and Figure 4-10). Within this landscape, a bare earth surface is not environmentally sustainable and also is not appropriate for heavy pedestrian and bicycle use. Based on its ability to withstand regular maintenance and use, chip seal is recommended as the single surface for on-grade portions of the trail, installed and maintained to meet the following:

- Firm, stable surface complying with ABAAS
- Durable surface resistant to rutting, erosion, and washout
- Capable of supporting infrequent automobile and dredge use while protecting berm
- Minimum mown vegetated shoulder of 1’–2’.

If it is not possible to maintain the historic character of the towpath using chip seal, limestone fines are an acceptable trail surface alternative. Public input on the Towpath Trail surface will be solicited through the concurrent CAP project.



Legend

- Park Boundary
- Towpath Trail: Connect where berm is missing
- Towpath Trail: Differentiate from historic route
- Towpath Trail: Rehabilitate historic character
- Highway
- Cuyahoga Valley Scenic Railroad
- Local Connecting Road
- Trail Outside Study Area
- Stream or River

Figure 4-6: Towpath Trail treatment types.



Figure 4-7: Towpath surface at Pinery Narrows, ca. 1890–1900 (CVNP slide 7.1-39).



Figure 4-8: Towpath surface in Ira/Botzum area, undated (Edwin Bell Howe Photograph Collection, Summit Memory).



Figure 4-9: Limestone fines trail surface in Segment 6 (QE, 2021).



Figure 4-10: Chip seal trail surface in Segment 1 (QE, 2021).

- Rehabilitate historic towpath character throughout all portions of the Towpath Trail that follow the historic route of the towpath.
    - Install and maintain the chip seal surface to represent the historic character of the towpath, including:
        - Material visually representing dry, durable earth surface
        - Irregular edge character
        - Tan or light brown color similar to native soil
        - Approximately 10 feet wide
        - Graded to drain away from the prism.
    - As the width of the towpath was variable during the period of significance (although typically approximately 10 feet wide), "bump-outs" for benches or interpretive features are acceptable along the portions of the Towpath Trail that follow its historic route. Bump-outs should only be used where the width of the berm can support the extra width of the space and should be gradual and taper out organically so that they do not appear to be distinct from the main portion of the trail. Utilize surface and edge treatment consistent with the adjacent trail, i.e., chip seal or limestone fines as indicated below.

- Where the towpath berm is no longer present, install or maintain an above-ground route in the historic location of the towpath.
    - Install or maintain wood boardwalks or puncheon with simple, low profile edges and/or wood or wood and wire guardrails. Design boardwalks or puncheon to be visually similar to the existing features at Beaver Marsh and Stumpy Basin (see Figure 4-11 and Figure 4-12).
    - Maintain boardwalk surfaces so they do not become slippery.

- Where the Towpath Trail no longer follows the historic route of the towpath, differentiate the trail surface using a color treatment that contrasts with portions of the trail on the historic route (see Figure 4-13).
    - Use a surface material consistent with other portions of the Towpath Trail (chip seal is preferred). Select a color that is compatible with the character of the cultural landscape but visually distinct from portions of the trail on the historic route, for example a darker brown or brown-red.
    - Maintain a trail width of approximately 10', consistent with other portions of the trail. Trail width may vary up to 4' to accommodate interpretive features, benches, or widened trail shoulders.



Figure 4-11: Boardwalk at Beaver Marsh (QE, 2021).



Figure 4-12: Wood boardwalk with low profile edges (Bridge Builders).



Figure 4-13: Color treatment is proposed to differentiate portions of the trail that do not follow the historic route of the towpath (QE, 2021). The darker pavement shade is proposed for non-historic trail locations.

Adjacent Trail Systems

- Limit the addition of new circulation routes within the canal corridor.
    - If new routes are needed to support visitor or administrative use, minimize the amount of signage, seating, and other small-scale features associated with trail system design. Refer to Overall Study Area Small-Scale Features Guidelines.
    - Avoid regrading that will damage historic road traces when establishing new trails. If regrading is necessary, use fill that is distinguishable from the existing ground surface.
    - Provide stormwater management as an integral component of new routes.

- Differentiate the trail surface using a color treatment that contrasts with portions of the trail on the historic route (see Figure 4-13 above). Bump-outs for interpretive features on trailheads and connector trails are acceptable.

- Continue to route bridle trail users off the Towpath Trail to avoid traffic conflicts and congestion with bicycle and pedestrian trail users. Maintain bridle trails with a bare earth surface.

Overall Study Area Natural Systems, Climate, and Topography Guidelines

Natural Systems, Climate, and Topography Guidelines provide strategies to improve the canal corridor's ability to adapt to changing environmental conditions while preserving the character of contributing landscape features. The guidelines identify parameters for a long-term river management approach and propose historic character-compatible options for stabilizing the towpath berm and retaining water within the canal prism to support wetlands and vernal pools. The Natural Systems, Climate, and Topography Guidelines are closely related to Overall Study Area Vegetation Guidelines.

Geology, Soils, and Topography

- Protect the steep valley walls and associated unstable soils adjacent to the canal corridor.
    - Establish and maintain erosion-resistant ground surfaces through vegetation, leaves, or rock outcrops.
    - Capture or slow runoff upslope from the canal prism through the use of check dams, mudcatchers, beaver dam analogs, and erosion control at the source of large sediment or runoff loads.
        - *Check dams* are small dams constructed across a drainage, swale, or channel to reduce runoff velocity. Use sandstone riprap for check dams to ensure features are compatible with the character of the cultural landscape. Site check dams in a location where they can be easily accessed for cleaning and maintenance while limiting visibility of these features. Minimize removal of vegetation when building check dams to avoid erosion and changes to the visual character of the location. Refer to Figure 4-14.
        - *Beaver dam analogs* are manmade structures designed to mimic the form and function of a natural beaver dam. The analogs are typically constructed of posts, willow weave, and cobble, gravel, and sand to trap water associated with a tributary or drainage.[17] Beaver dam analogs can be implemented to slow runoff upslope from the canal or to retain water within the prism. Refer to Figure 4-15.
        - Coordinate with local and regional authorities to ensure proper erosion control facilities are incorporated during construction of upstream developments, for example, silt fences and sediment basins.

- Preserve the gentle slope of the canal corridor downhill to the north. Avoid development that substantially alters the slope of the prism, berm, or Towpath Trail.

[17] Anabranch Solutions, "Beaver Dam Analogs," accessed November 2021, https://www.anabranchsolutions.com/beaver-dam-analogs.html.



Figure 4-14: Permeable rock check dams (Minnesota Stormwater Manual/Limnotech).



Figure 4-15: Beaver Dam Analog (EurekAlert).

Hydrology

- Coordinate with an interdisciplinary team to develop a long-term approach for river management with a focus on the relationship between the Cuyahoga River and adjacent historic features, including the canal berm and prism. Limited locations within the canal corridor are persistently threatened by movement of the Cuyahoga River within its floodplain and may not be feasibly protected in the long term by compatible slope stabilization measures.
    - Include natural resources staff, cultural resources staff, interpretation staff, and water resources engineer(s) in development of the river management plan.
    - Collaborate with the SHPO, DNR, and other appropriate agencies to analyze potential impacts to the towpath berm.
    - As part of the river management approach, identify criteria for limited locations where the berm may be allowed to erode, for example:
        - Outside of the proposed NHL;
        - Relatively low historic integrity;
        - No known archeological resources based on Phase I Archeological Survey;
        - No adjacent stone or concrete structures;
        - No adjacent interpretive nodes; and/or
        - High level of investment to protect berm.
    - Where the berm is allowed to erode, maintain the Towpath Trail along the historic alignment of the towpath using a boardwalk or bridge. Refer to Overall Study Area Circulation Guidelines.

- Stabilize the towpath berm where the feature is threatened by erosion from the adjacent Cuyahoga River, with the exception of limited locations identified for alternate treatment by the recommended river management plan. Select slope stabilization methods that emphasize native vegetation and local materials compatible with the character of the cultural landscape.
    - Work with a hydrologic/hydraulic engineer, geotechnical engineer, cultural landscape specialist, and biologist or ecologist to identify an appropriate design for slope stabilization, considering the following factors:
        - Soil characteristics
        - River flow velocities
        - Frequency of erosive velocities
        - Flood elevations
    - Examples of methods are:
        - *Live staking:* Live staking is a simple technique that installs a dormant cutting directly into the ground. This technique is often utilized where single stem plantings will provide adequate plant cover, slope stability and fish habitat.[18] Live stakes create a living root mat that stabilizes the soil by reinforcing and binding soil particles together and by extracting excess soil moisture. Select native shrubs that will root rapidly and begin to dry out an excessively wet bank soon after installation.[19] Refer to Figure 4-18.
        - *Soil lifts:* Fabric-encapsulated soil lifts are a bioengineering technique used to rebuild eroded banks and create banks on top of newly installed toe protection technique. Soil is “encapsulated” in biodegradable fabric to shape a bank. Once vegetation is established and the fabric degrades, the roots hold the new slope in

[18] Streambank Revegetation and Protection: A Guide for Alaska, Revegetation Techniques: Live Staking, accessed December 2021, http://www.adfg.alaska.gov/index.cfm?adfg=streambankprotection.staking.

[19] A Soil Engineering Guide for Streambank and Lakeshore Stabilization, accessed December 2021, https://www.fs.fed.us/t-d/pubs/pdf/fs683/cover.pdf.

place. Fabric-encapsulated soil lifts are also commonly referred to as "burrito" soil lifts or coir lifts.[20] Refer to Figure 4-19.

- *Brush mattress:* Also known as live brush mats or brush matting, a brush mattress is a combination of live stakes, live fascines, and branch cuttings installed to cover and stabilize streambanks. Brush mattresses are used to form an immediate, protective cover over the streambank. A thick mat of dormant cuttings is placed on the bank and held down with stakes. The goal of a brush mattress is to create structural streambank protection that will eventually root and provide vegetative stabilization. This technique is often used in conjunction with other methods, such as live stakes and stone toe protection.[21] Refer to Figure 4-17.
- *Bendway weirs*: The bendway weir is a low-level, totally submerged rock structure that is positioned from the outside bankline of the riverbend, angled upstream toward the flow. These underwater structures extend directly into the navigation channel underneath passing tows. Their unique position and alignment alter the river's secondary currents in a manner which controls excessive channel deepening and reduces adjacent riverbank erosion on the outside bendway. Because excessive river depths are controlled, the opposite side of the riverbank is widened naturally. This results in a wider and safer navigation channel through the bend without the need for periodic maintenance dredging.[22] Refer to Figure 4-16.
- *Rootwad composites:* A rootwad composite is a combination of interlocking tree materials where a mass of tree roots, commonly called a rootwad, is utilized with other tree parts and revegetation methods to stabilize streambanks and provide aquatic habitat. Rootwad composites are often a cost-effective bank stabilization and habitat enhancement treatment. Rootwad composites move the current line away from the streambank so that the bank is less susceptible to erosion through hydraulic forces. This, in effect, reduces the energy environment along the streambank/water interface so that riparian vegetation can provide the necessary bank protection and habitat values. Rootwad composites also generate turbulence that creates streambed scour and provides cover and substrate for aquatic organisms.[23] Use native plant species determined appropriate for the location by a biologist or ecologist. Refer to Figure 4-20.
- *Toe wood with face and coir-log:* Toe wood is a streambank protection technique used to protect streambanks from erosion while providing instream cover for fish using natural materials. Toe wood is designed to look natural and provide bank stabilization while vegetation is establishing, and eventually the wood will deteriorate, leaving a vegetated, stabilized bank. Toe wood dissipates flow energy and helps maintain deep lateral scour pools by creating turbulence and shifting the thalweg off the bank toe. A bankfull bench is preferred when using toe wood to stabilize an existing bank. The bankfull bench reduces sheer stress on the existing bank and provides a flat surface to minimize runoff erosion and slumps,

[20] River Restoration Toolbox Practice Guide 7, Streambank Toe Protection/Stabilization Techniques, accessed December 2021, https://www.iowadnr.gov/Portals/idnr/uploads/RiverRestoration/toolbox/stream-bank-toe-protection/Practice%207_Streambank_Toe_Potection_Full_Chapter.pdf.

[21] Brush Mattresses, accessed December 2021, https://megamanual.geosyntec.com/npsmanual/brushmattresses.aspx.

[22] Bendway Weirs, accessed December 2021, https://www.mvs-wc.usace.army.mil/arec/Basics_Weirs.html.

[23] Rootwad Composites for Streambank Erosion Control and Fish Habitat Enhancement, accessed December 2021, https://swf-apps.usace.army.mil/pubdata/environ/regulatory/other/links/stream/rootwadcomposites.pdf.

keeping additional soil from entering the stream.[24] Coir logs are constructed of interwoven coconut fibers that are bound together with biodegradable netting. Commercially produced coir logs come in various lengths and diameters. The product needs to be selected specifically for the site. Fiber logs composed of other sturdy biodegradable materials may function equally well. Applications for coir logs occur in many streambank, wetland and upland environments. The log provides temporary physical protection to a site while vegetation becomes established and biological protection takes over. The logs can provide a substrate for plant growth once the log decay process starts and protects native and newly installed plants growing adjacent to the log. This technique can be used as a transition from one revegetation technique to another and used to secure the toe of a slope in low-velocity areas. Both the upstream and downstream ends of the coir log(s) need to transition smoothly into a stable streambank to reduce the potential for wash out.[25] Refer to Figure 4-21.

- *Vegetated riprap/toe protection:* Vegetative riprap combines the widely accepted, resistive, and continuous rock revetment techniques with vegetative techniques. A layer of stone and/or boulder armoring that is vegetated, optimally during construction, using pole planting, brush layering and live staking techniques. [26] Establishment of native vegetation will improve fish habitat by creating shade, cover, and an input of small organic debris to the stream. In most cases it will negate the need for the regulator to require habitat alteration compensation. It will also provide added bank protection through development of root mass. An additional benefit of this combined technique is a potential supply of fodder for local animal populations.[27]
- *Structural earth walls:* Mechanically stabilized earth (MSE or reinforced soil) is soil constructed with artificial reinforcing. MSE walls stabilize unstable slopes and retain the soil on steep slopes and under crest loads. The wall face is often of precast, segmental blocks, panels, or geocells that can tolerate some differential movement. The walls are infilled with granular soil, with or without reinforcement, while retaining the backfill soil. Reinforced walls utilize horizontal layers typically of geogrids. The reinforced soil mass, along with the facing, forms the wall. In many types of MSEs, each vertical fascia row is inset, thereby providing individual cells that can be infilled with topsoil and planted with vegetation to create a green wall.[28] Refer to Figure 4-22.
- *Sandstone rip rap:* Riprap is a permanent layer of large, angular stone, cobbles, or boulders typically used to armor, stabilize, and protect the soil surface against erosion and scour in areas of concentrated flow or wave energy. Riprap is typically placed along graded ditch, channel, and shoreline banks over geotextile, which prevents erosional undercutting. Riprap is used to stabilize areas on a construction site with high erosive power by increasing surface roughness and

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[24] River Restoration Toolbox Practice Guide 7, Streambank Toe Protection/Stabilization Techniques, accessed December 2021, https://www.iowadnr.gov/Portals/idnr/uploads/RiverRestoration/toolbox/stream-bank-toe-protection/Practice%207_Streambank_Toe_Potection_Full_Chapter.pdf.

[25] Streambank Revegetation and Protection: A Guide for Alaska, Protection Techniques: Coir Logs, accessed December 2021, https://www.adfg.alaska.gov/index.cfm?adfg=streambankprotection.coir

[26] Vegetated Riprap, accessed December 2021, https://dirttime.tv/wp-content/uploads/2018/04/Vegetated-Riprap.pdf

[27] Vegetated & Complex Riprap Application, accessed December 2021, https://www.terraerosion.com/VegetatedRiprap.htm

[28] Mechanically stabilized earth, accessed December 2021, https://en.wikipedia.org/wiki/Mechanically_stabilized_earth

slowing the velocity of runoff. Size of riprap stones required will vary depending on flow velocities to overcome.[29] Sandstone riprap is recommended to be more visually compatible with historic elements. Refer to Figure 4-23.



Figure 4-16: Bendway weir (Virginia DOT).



Figure 4-17: Brush mattress (Virginia DOT).

[29] Erosion prevention practices – Riprap, accessed December 2021, https://stormwater.pca.state.mn.us/index.php?title=Erosion_prevention_practices_-_Riprap



Figure 4-18: Live stakes along headwater stream (Cuyahoga Soil and Water Conservation District).



Figure 4-19: Vegetated soil lift (Streamhandbook.org).



Figure 4-20: Rootwad composite (Montgomery County, MD, "Stream Restoration Techniques").



Figure 4-21: Coir logs along Antietam Creek (NPS Antietam National Battlefield).



Figure 4-22: Mechanically stabilized earth wall (ACF Environmental).



Figure 4-23: Riprap along the Cuyahoga River (NPS).

- Continue to maintain existing wetlands within the canal prism. Refer to Overall Study Area Vegetation Guidelines.

- Retain water within "unwatered" portions of the canal corridor the prism to enhance visibility of the prism and support creation of vernal pools. Refer to Overall Study Area Vegetation Guidelines.
    - Utilize low profile berms, removed or blocked culverts, or beaver dam analogs to retain water within the prism.
        - *Low profile berms* are installed across the width of the prism to retain low levels of water within the prism, rather than allowing the water to continue to drain to the north. Berms may be installed in a series to retain water continuously throughout a segment of the prism. Construct the berms of native soil below the level of the towpath berm, so that they do not compete visually with contributing canal components. Refer to Figure 4-24.
        - *Removed or blocked culverts* retain water within the prism by blocking water outlets. Select culverts to remove or block based on the overall connectivity of the adjacent prism to ensure that retained water will flow north within the prism, rather than overflowing across the Towpath Trail.
        - *Beaver Dam Analogs:* refer to Geology, Soils, and Topography section above.
    - Allow water to be retained within locks in the "unwatered" portions of the canal corridor. Refer to Overall Study Area Buildings and Structures Guidelines.
    - Provide for visually discreet overflow from the canal prism for high water events.
        - In locations where the overflow will be clearly visible from the Towpath Trail, install new culverts or modify existing culverts to be visually compatible with the historic character of the canal corridor. Utilize culverts with a stone headwall consistent with local native stone. Refer to Figure 4-25.
        - In locations where the overflow will be substantially lower than the elevation of the Towpath Trail or otherwise difficult to see from the trail, install simple pipe culverts screened by native vegetation or modify existing culverts to match this condition. Utilize small riprap consistent with the native sandstone where necessary to protect the adjacent ground surface. Refer to Figure 4-23.
        - Solutions for individual conditions along the canal corridor are addressed in the Treatment Guidance by Segment.

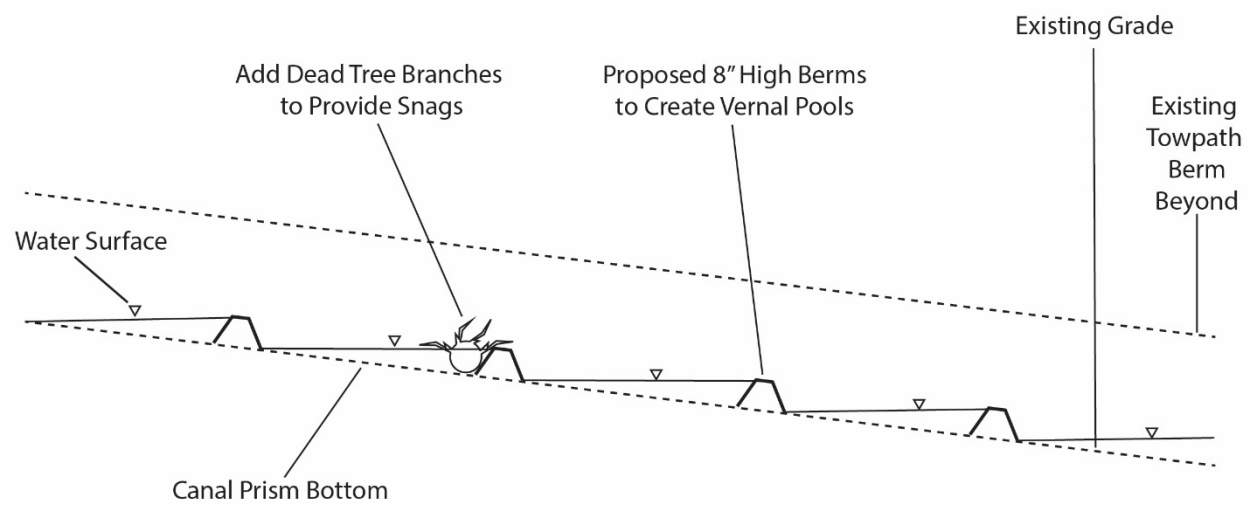


Figure 4-24: Retain water within the canal prism using low-profile berms (SKDG, 2021).



Figure 4-25: Stone-faced culvert, Stones River National Battlefield (QE, 2021).

- Where tributaries intersect with the canal corridor and are continuously damaging and eroding the canal prism, berm, contributing culverts, or other historic canal components, install culverts compatible with the historic character of the landscape.
    - Prioritize protection of the historic fabric of the seven contributing culverts rather than resizing culverts to address new hydrologic conditions. Work with civil engineer and historical landscape architect to identify appropriate location and size of supplemental drainage capacity or new culverts based on frequency of design storm, drainage area, and design flow while minimizing impacts to the historic fabric. For example:
        - Overflow to a new or existing non-contributing culvert that is not visible from the towpath.
        - Increase capacity with a new culvert at an elevation lower than the contributing culvert, if feasible based on the relative elevation of the culvert and the Cuyahoga River.
    - Maintain non-contributing culverts that function effectively. If major changes are needed to non-contributing culverts, prioritize resizing these features using methodology that is compatible with the historic character of the canal corridor rather than modifying contributing culverts.

- Dredge "watered" portions of the canal prism to remove silt buildup and support operation of the planned pump north of Station Road Bridge.
    - Comply with US Army Corps of Engineers dredging regulations and the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. Ensure work is guided by interdisciplinary team including engineer and historic preservation professional to design approach that complies with both of these.
    - Maintain wetland vegetation along the edge of the prism.
    - Small dredge pumps and dewatering filter bags are recommended to limit impacts to adjacent vegetation, prism and berm, and the Towpath Trail surface. Refer to Figure 4-26. The dewatering filter bag is an economical filtration product commonly used for storm water runoff, dredging, and construction site filtering. Filter fabrics used on the bags allow for sediment and silt to settle inside of the bag, while clear water drains out of the

bag's needle punched pores. Silt and sediment dewatering filter bags are manufactured filtration products designed to help with the retention of debris and contaminants in multiple water collection sites. Bags have been used for both large and small jobs to help keep runoff clean and filter materials from your site. These products are often used as part of a Stormwater Pollution Protection Plan (SWPPP) to keep runoff clean and meet NPDES clean water requirements. As part of a site dewatering plan, filter bags are often placed in dump trucks and transport vehicles while sediment is being retained. Careful protection of the ground surface is necessary during this process. Once complete, trucks can be drained of clean, excess water and sediment-filled bags can be moved to dump locations.[30] Consult with dredge provider for appropriate size.

- Remove and retain all dredged material to an area without navigable waters ("waters of the United States") unless otherwise specifically approved by the district engineer under separate authorization (USACE NWP 19). Dredged material can typically be used for capping off landfills, brownfield reconstruction, fill for construction projects, producing manufactured topsoil, and enhancing degraded farmland. Consider engaging with the US Army Corps of Engineers and State of Ohio to participate in pilot projects to repurpose removed sediment.



Figure 4-26: Dewatering filter bag (Solhutec).

[30] Dewatering Bags, Bags for Silt and Sediment Filtration, accessed December 2021, https://www.solhutec.com/dewateringbags.html

Resilience to Climatic Conditions

Severe precipitation events are forecasted to increase in frequency due to climate change in northeastern Ohio.[31] The following strategies are provided to improve resilience.

- Minimize areas of woodland disturbance, earth grading and compaction, and drainage pattern alteration.
- Ensure positive drainage around all building foundations. Provide stormwater management as an integral component to development of new buildings and circulation systems.
- Evaluate the potential impact of any construction or vegetation removal project to avoid altering the habitats of rare, threatened, or endangered species or species of concern.
- Consider the long-term maintenance and life-cycle costs of materials selected for new design and construction within the study area. Prioritize materials that are durable, low-maintenance, and environmentally sustainable.

[31] S.D. Jones, R. Cook, J. Sovell, M. Ley, H. Pilkington, D. Weinzimmer, P. Smith, and C. Linares, *Natural resource condition assessment: Cuyahoga Valley National Park*, Natural Resource Report NPS/CUVA/NRR—2021/2243 (Fort Collins, Colorado: National Park Service, 2021), 65-75; N.A. Fisichelli, G.W. Schuurman, W.B. Monahan, and P.S. Ziesler, "Cuyahoga Valley National Park: How might future warming alter visitation?" National Park Service, 2015.

Overall Study Area Vegetation Guidelines

Vegetation guidelines for the Ohio & Erie Canal corridor focus on increasing visibility of canal components, in particular the relationship between the canal prism and towpath berm, while supporting ecosystem health in the surrounding forests and wetlands. The guidelines are closely tied to Overall Study Area Natural Systems, Topography, and Climate Change Guidelines presented in this chapter.

Three vegetation management types are recommended to address differing conditions in the "watered" and "unwatered" portions of the prism, as well as locations where the berm is inundated or may become eroded in the future. Application of these three types is illustrated on Figure 4-27 and in the individual segment drawings in the next section of the chapter, which begins on page 4.57.

The guidelines will be supported by vegetation surveys along the canal corridor by a Natural Resource Management Assistant responsible for an intensive assessment of the current ecological conditions within the historic canal prism, including identification of habitat types, wetland borders, invasive species, and hydrological influences.[32] Long-term management recommendations developed by the Management Assistant will be integrated into selection of test sites for vernal pool establishment and refinement of vegetation management strategies.

- Rehabilitate vegetation that supports the historic character of "watered" portions of the canal corridor (segments 6 and 7). Desired condition is illustrated on Figure 4-28 and Figure 4-29.
    - Maintain the space between the Towpath Trail and prism clear of woody vegetation. This condition was necessary to allow for canal boats to be pulled by teams of mules or horses.
    - Remove downed trees and manage wildlife (including beaver and muskrat) to maintain the National Historic Landmark portion of the study area with the appearance of a navigable waterway.
    - Remove understory and invasive vegetation from along the margins of prism and towpath. Allow trees to continue to grow along the river side of the Towpath Trail. Although a 60' corridor was cleared during construction of the canal, trees were present along the margins of the towpath later in the period of significance. This condition will also improve comfort for trail users by providing shade and cooling effects of nearby plants.
    - Manage surrounding forests and wetland for ecosystem health. Maintain trees on steep slopes adjacent to the canal corridor where part of a healthy forest ecosystem.
    - Manage vegetation between the prism and Canal Road to increase visibility between Towpath Trail and road where modern development is limited.
    - Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines to address hydrologic conditions within the "watered" section of the prism:
        - Regularly dredge the canal prism while protecting historic integrity. Maintain wetland vegetation along prism edges.
        - Capture or slope runoff upslope from the canal prism to control silt and alluvial deposits within the prism.
        - Maintain culverts at intersections with large tributaries.
        - Protect towpath berm from river encroachment and erosion.

[32] National Park Service, "Position Description Summer 2022: Natural Resource Management Assistant," on file at Cuyahoga Valley National Park, November 2021.

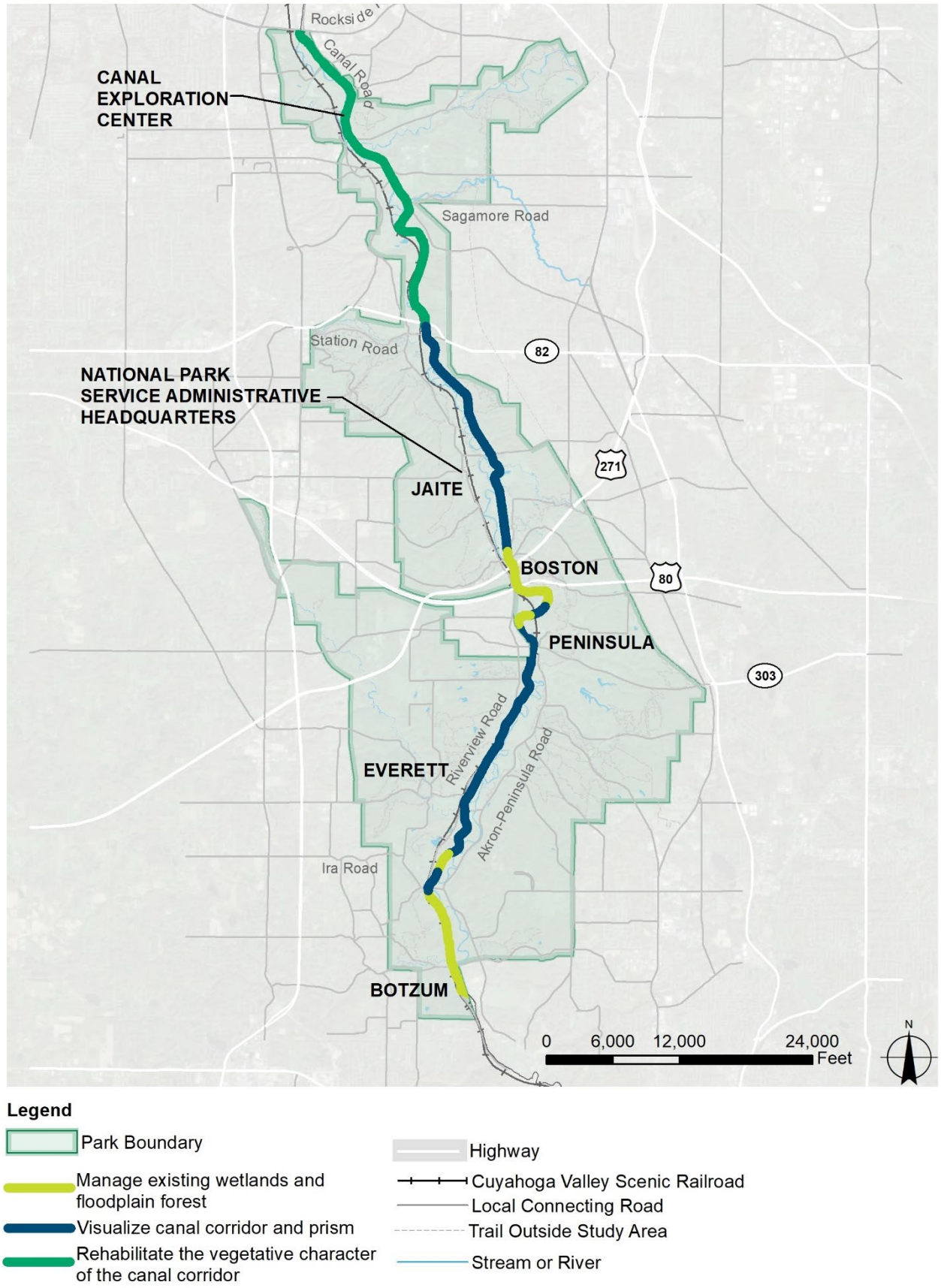


Figure 4-27: Canal corridor vegetation treatment types.



Figure 4-28: Canal prism at Lock 39, ca. 1900s (Louis Baus Photograph Collection, OEC_46, The University of Akron, University Libraries Archival Services).



Figure 4-29: Canal prism near Lock 37, 1902 (Louis Baus Photograph Collection, The University of Akron, University Libraries Archival Services).

- Manage vegetation to visualize the canal corridor and prism where the topography of the prism is intact in "unwatered" portions of the canal corridor (segments 2, 3, and 5). Maintain existing wetlands within the prism or create vernal pools where appropriate conditions are present.
    - Remove understory and invasive vegetation from between towpath and prism. Allow select large trees (over 6" diameter) in good condition to remain between the Towpath Trail and the prism.
    - Encourage creation of vernal pools by retaining surface or groundwater within the prism. Vernal pools are small, isolated wetlands that occur in forested settings where groundwater, snow melt, or rainwater collects in shallow depressions (see Figure 4-30). Vernal pools provide critical habitat for breeding amphibians and reptiles during the spring and typically dry out during late summer and into fall. In Ohio, vernal pools are frequently characterized by a shrub layer including spicebush, winterberry holly,

buttonbush, sedges, and skunk cabbage that thrives in the high water table.[33] Work with an ecologist and water resources engineer to identify locations for establishment of vernal pools within the canal prism meeting the following requirements:
    - Water within the prism will not be directly connected to the Cuyahoga River during a flood, ensuring that the vernal pool will not be washed out.
    - Water within the prism should be at least 8" deep in the spring and dry out in mid to late summer so that the pool will not provide fish habitat.
    - The prism contains existing vernal pools in several locations north of Peninsula. Characteristics of these areas, including distance from the river and elevation, may inform other locations for vernal pool establishment.
  - Maintain existing wetlands within the canal prism, allowing for a range of hydrologic conditions (see Figure 4-31). Snags provide beneficial habitat features within existing wetlands and should be retained except where they are hazardous to visitors.
  - Where water cannot be retained in the prism, selectively remove vegetation that blocks views between towpath and prism, including invasive vegetation, brush and non-woody vegetation, and small trees (under 6" diameter). Refer to Figure 4-32.
  - Manage surrounding forests, wetlands, and grasslands for ecosystem health. Allow prescribed fire for vegetation management within the study area where it will not impact canal components.
  - Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines to address hydrologic conditions within these sections of the prism:
    - Protect towpath berm from river encroachment and erosion.
    - Where possible, retain surface or groundwater within the prism through low-profile berms or blocked or removed culverts.
    - Add or maintain culverts at intersections with large tributaries.

- Continue to manage vegetation for wetland and floodplain forest health in "unwatered" portions of the canal corridor where the prism and berm are no longer extant. This vegetation type will also be applicable to locations where the river is allowed to erode limited sections of the towpath berm in the long term, based on the recommendations of the proposed river management study. Refer to Overall Study Area Natural Systems, Topography, and Climate Change Guidelines.
  - Continue to treat invasive vegetation following park best management practices.
  - Continue to manage for wildlife value. Coordinate with the concurrent CAP project for considerations related to threatened and endangered species.
  - Allow the vegetation composition to adapt to the changing hydrology of the Cuyahoga River and its tributaries.
  - Continue to monitor for markers of ecosystem health, including species composition and water quality.

- Where ornamental plantings are needed at domestic or village sites in the future, use a palette of compatible native and non-native species appropriate to the nineteenth- and early twentieth-century canal corridor cultural landscape, for example: crabapple (*Malus pumila* sp.), dogwood (*Cornus florida),* bridalwreath spirea (*Spiraea prunifolia*), honeysuckle (*Lonicera sempervirens*), rose (*Rosa* sp.), lilac (*Syringa vulgaris*), brunnera (*Brunnera macrophylla*), hosta (*Hosta* sp.), forsythia (*Forsythia* sp.), boxwood (*Buxus* sp.), deutzia (*Deutzia gracilis*), hydrangea (*Hydrangea* sp.), dwarf viburnum varieties (*Viburnum* sp.), bleeding heart (*Dicentra spectabilis*), columbine (*Aquilegia* sp.), geranium (*Geranium* sp.), Lenten rose (*Helleborus orientalis*), astilbe (*Astilbe*

[33] Ohio Vernal Pool Network, "Vernal Pool Ecology," accessed December 2021, https://www.ohiovernalpoolnetwork.org/vernal-pool-ecology.html; and S.A. Thomas, YU. Lee, M.A. Kost, and D.A. Albert, *Abstract for Vernal Pool* (Lansing, MI: Michigan Natural Features Inventory, 2010), accessed December 2021, https://mnfi.anr.msu.edu/abstracts/ecology/Vernal_Pool.pdf.

chinensis), weigela (*Weigela florida*), beautybush (*Kolkwitzia amabilis*), flowering quince (*Chaenomeles x superba*), cheddar pinks (*Dianthus* sp.), peony (*Paeonia* sp.), and yarrow (*Achillea millefolium*).



Figure 4-30: Vernal pool (Michigan State University, Michael A. Kost).



Figure 4-31: Desired condition of "unwatered" canal prism: existing wetland within canal prism at mile marker 18 (QE, 2021).



Figure 4-32: Desired condition of "unwatered" canal prism: limited woody vegetation where water is not retained within the prism (QE, 2021).

Overall Study Area Archeological Sites Guidelines

Recommended treatment for archeological features focuses on preserving archeological sites by avoiding disturbance and conducting select archeological investigations to enhance understanding of historic land use.

- Preserve archeological sites along the canal corridor. Continue to follow recommendations presented in the park's archeological overview and assessment.[34]
- During the development of implementation plans for individual projects, work with park Cultural Resources staff and State Historic Preservation Office to determine an appropriate process for archeological monitoring.
- Conduct a Phase 1 archeological survey in advance of ground-disturbing activities.
- Conduct archeological investigations to support design and construction of features interpreting missing canal components or related buildings and structures.

[34] Fred A. Finney, *Calumet, Canal, and Cuyahoga: An Archaeological Overview and Assessment of the Cuyahoga Valley National Park, Ohio* (Lincoln, Nebraska: National Park Service, Midwest Archeological Center, Purchase Order PX611598078, 2002), 302-306.

Overall Study Area Small-Scale Features Guidelines

Recommendations for small-scale features within the canal corridor emphasize maintaining existing site furnishings that serve visitor use, including site furnishings, trail signs and markers, and fences and guardrails. Once these elements require repair or replacement, utilize styles and materials that are compatible with the historic setting and resistant to wildlife tampering. Character guidelines for small-scale features are presented below for site furnishings, trail signs and markers, fences and guardrails, and footbridges.

New additions of small-scale features should be limited within the canal corridor landscape. Prioritize clustering small-scale features near trailheads and interpretive nodes. Content and locations for trail signs, markers, and other information will be identified by the concurrent CAP project.

Site Furnishings

- Continue to use stone and wood benches consistent with the existing bench style along the canal corridor. Refer to Figure 4-33.
- Replace or install new benches that include arms to improve accessibility, particularly near trailheads.
    - Follow park guidance for the number of benches with armrests to be provided along the Towpath Trail.
    - Examples of benches consistent with the character of the cultural landscape are provided in Figure 4-34 and Figure 4-35.
- Continue to use features including boxes and barrels or limited sculptural elements to enhance character and interpretation at trailheads. Refer to Figure 4-36.



Figure 4-33: Existing wood and stone bench along Towpath Trail (QE, 2021).

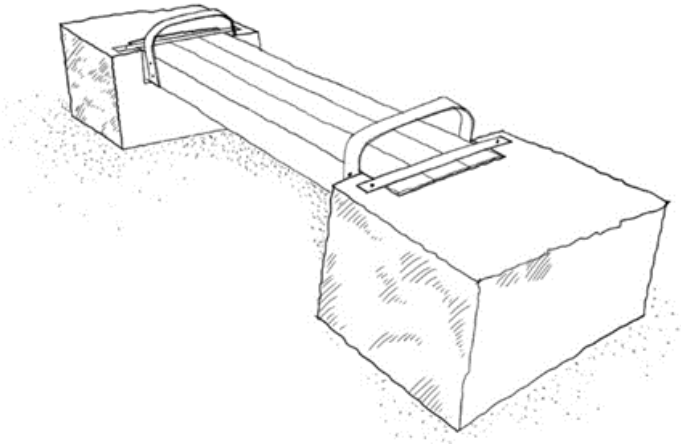


Figure 4-34: Existing wood and stone bench with added wood or metal arm rest (QE, 2021).



Figure 4-35: Example wood bench with arms (QE, 2021).



Figure 4-36: Existing boxes and barrels interpretive elements at Canal Exploration Center (QE, 2021).

Utilities

- Explore the feasibility of rerouting or burying gas lines that cross the canal prism to improve safety and reduce visual and resource impacts.

Trail Signs and Markers

- Continue to use routed wood signs to provide wayfinding along the canal corridor. Ensure that signage is visible for all trail users by installing at a height between 2' and 5' above ground level. Refer to Figure 4-37.
- Within clusters of development along the canal corridor, consider attaching signage directly to structures. Refer to Figure 4-38.
- Continue to use stone mile markers along the canal route. Provide an explanation of the distance between markers (nautical miles) in interpretive materials and identify the features' relationship to historic circulation patterns. Refer to Figure 4-39.



Figure 4-37: Routed wood trail sign along Towpath Trail (QE, 2021).

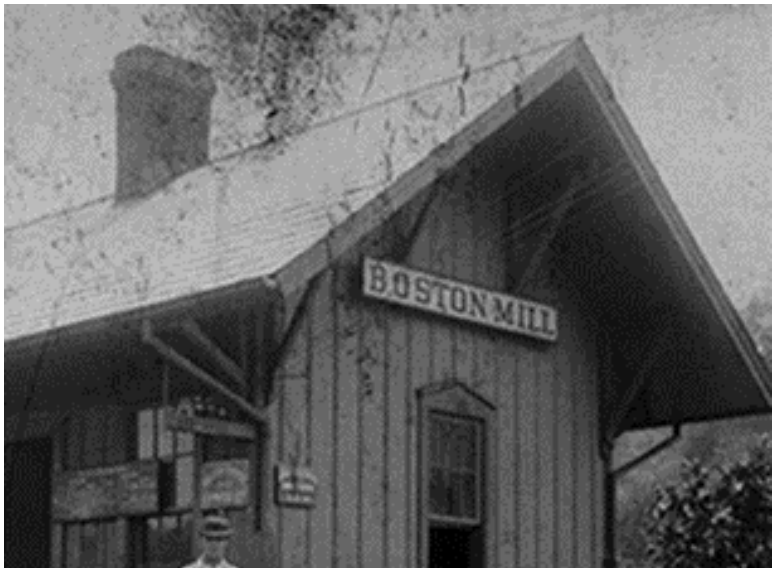


Figure 4-38: Sign attached to Boston Mill Train Depot, 1910 (National Park Service Collection).



Figure 4-39: Mile marker along Towpath Trail (QE, 2021).

Fences and Guardrails

- Use simple wood bollards where spatial delineation is needed adjacent to canal structures. Refer to Figure 4-40 and Figure 4-41.
- Install simple wood rail or board fencing where needed within the study area. Natural stain or white or brown paint are compatible with the character of the cultural landscape. Refer to Figure 4-42 through Figure 4-44.



Figure 4-40: Wood mooring bollard or post at Lock 38, 1890s (Western Reserve Historical Society).



Figure 4-41: Mooring bollards at Lock 28, 1890 (Louis Baus Canal Photograph Collection, OEC_123, The University of Akron, University Libraries Archival Services).

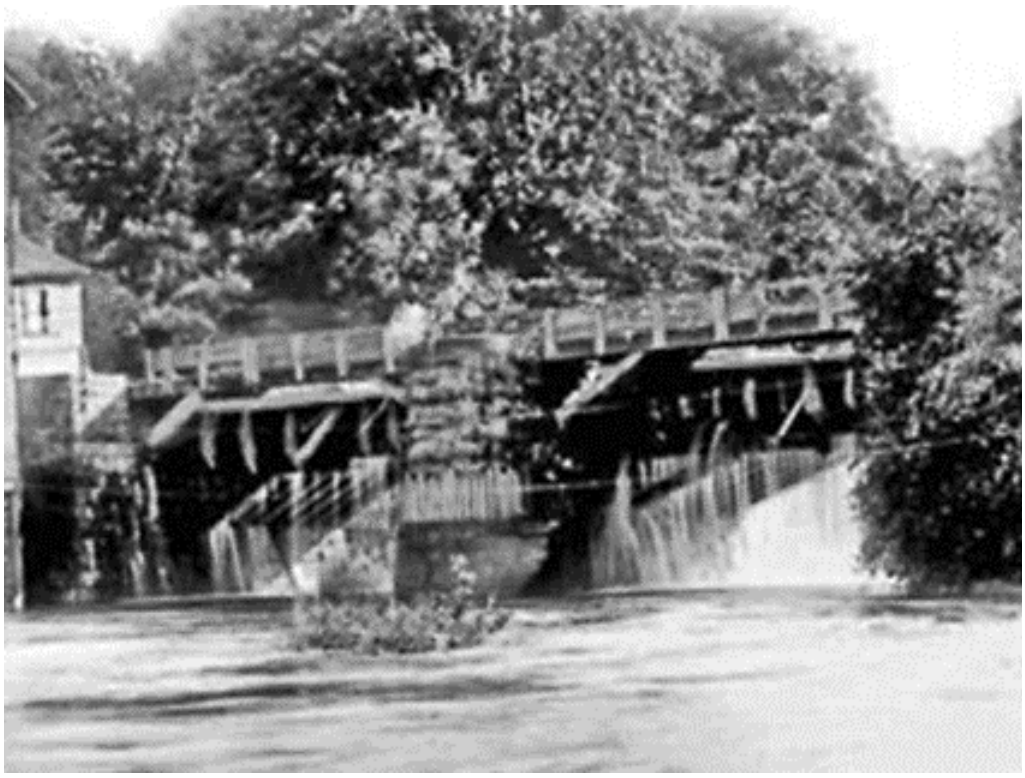


Figure 4-42: Railing at Peninsula Aqueduct, 1898 (Louis Baus Canal Photograph Collection, OEC_119, The University of Akron, University Libraries Archival Services).



Figure 4-43: Fence at Lock 38 and Locktender's House, 1874 (CVNP 15298/6/20).



Figure 4-44: Painted wood fence along Canal Road, 1916 (Louis Baus Photograph Collection, OEC_43, The University of Akron, University Libraries Archival Services).

Footbridge and Trail Bridges

- When footbridges across the prism and canal structures or trail bridges require replacement, design new features to be compatible with historic bridge types used within the study area while meeting modern standards for safety and accessibility. Refer to historic photographs and the 1892 Silliman Survey. Example bridges are provided in Figure 4-45 through Figure 4-47.

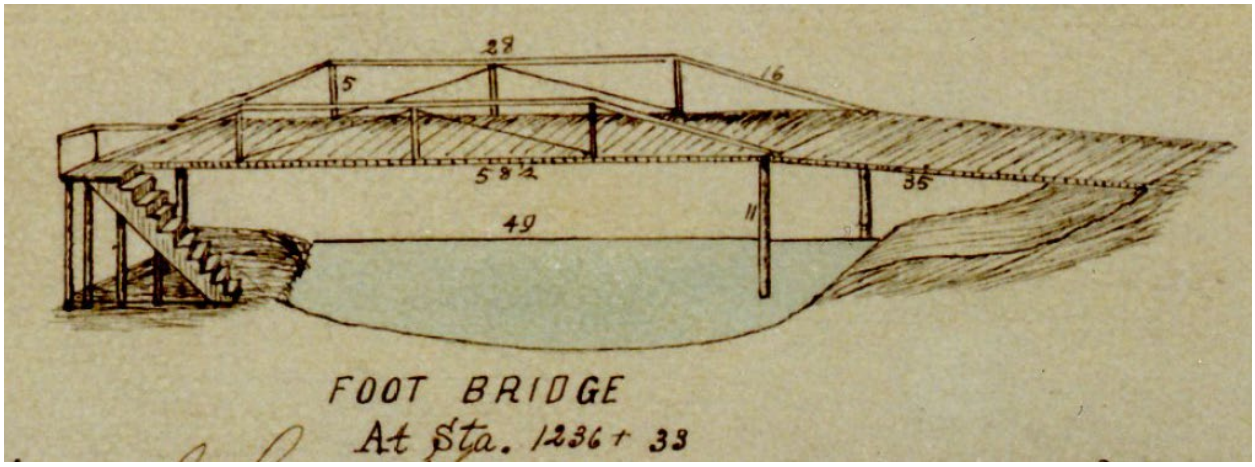


Figure 4-45: Foot bridge, 1892 (Map of the Ohio Canal, Cuyahoga and Summit Counties, Ohio, D.C. Kennon).

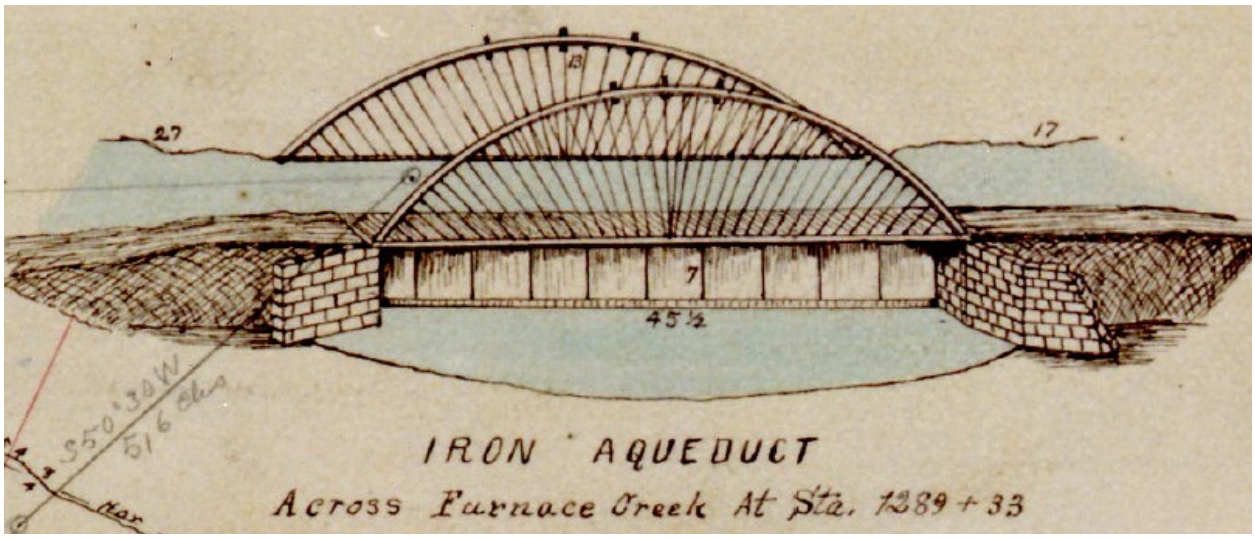


Figure 4-46: Furnace Creek Aqueduct, 1892 (Map of the Ohio Canal, Cuyahoga and Summit Counties, Ohio, D.C. Kennon).

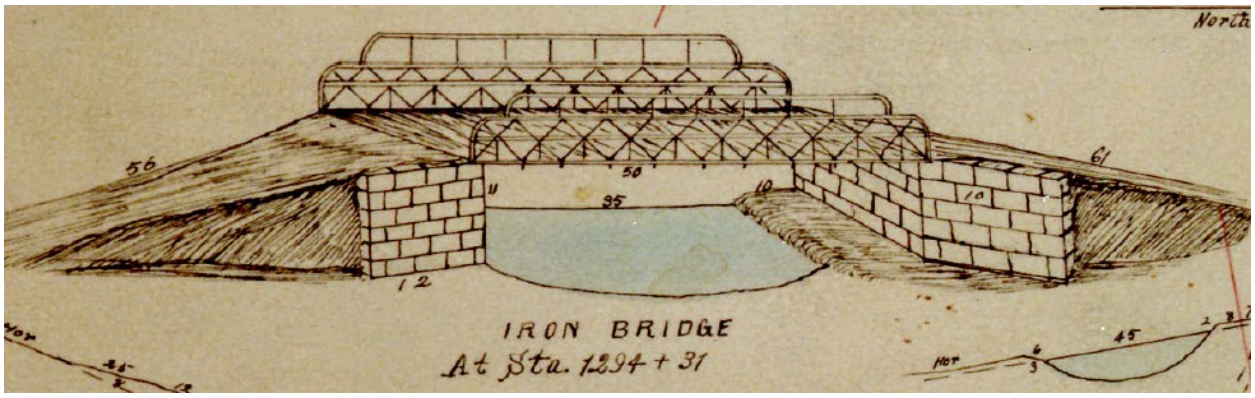


Figure 4-47: Iron Bridge, 1892 (Map of the Ohio Canal, Cuyahoga and Summit Counties, Ohio, D.C. Kennon).

Overall Study Area Visitor Experience Guidelines

Visitor experience guidelines provide recommendations for protecting and enhancing significant views, developing interpretive nodes related to canal-era landscape use, and representing missing features and spatial relationships important to understanding the historic canal corridor within the landscape. Visitor experience recommendations are illustrated in the individual segment drawings in the next section of the chapter, which begins on page 4.57.

Views

- Preserve and selectively interpret significant historic views and vistas within the canal corridor landscape by maintaining vegetation patterns. Key characteristics and locations of significant views include:
    - Views to buildings, structures, or clusters of development associated with the canal, for example the Canal Exploration Center, Alexander's (Wilson's) Mill, the village of Boston, the village of Peninsula, and the village of Everett;
    - Views to roads present during the period of significance, for example Canal Road;
    - Views to the Cuyahoga River; and
    - Views to the Cuyahoga Valley Scenic Railroad, and in particular locations where the railroad crosses the river and/or canal corridor.
- Manage hydrologic conditions and vegetation to improve visibility of canal components throughout the study area. Refer to Overall Study Area Natural Systems, Climate, and Topography Guidelines and Vegetation Guidelines.
- Avoid adding buildings, structures, circulation routes, and vegetation that impacts or obscures significant viewsheds. When modifications to the landscape are required to support visitor use or facilities management within a significant viewshed, follow guidelines for spatial organization, circulation, and vegetation to ensure that alterations or new additions do not detract from the character of the view.
  Screen views of modern development along the canal corridor using compatible vegetation.

Interpretive Nodes

- Consider developing additional interpretation for topics related to canal-era landscape use. Where possible, cluster new interpretive nodes near existing interpretation or trailheads along the canal corridor to limit the addition of new features between trailheads. Potential interpretive topics include:
    - Canal Road
    - Railroad structures within the canal corridor
    - Villages and businesses associated with the canal
    - Historic vegetation patterns and commercial timber operations.

Missing Features

- Consider representing limited missing canal-era features in the landscape. Missing features to be depicted in this manner may include buildings and structures associated with the canal, the canal prism, the berm, or the towpath. Conduct archival research and archeological investigations to support interpretation of missing buildings and structures. Based on available evidence, applicable interpretation strategies may include:
    - *On-grade building footprints*: When the dimensions and location of the footprint of a missing building or structure are known, an outline or other demarcation such as a low wall or corner markers can identify the feature's location on the ground plan. Avoid digging into the ground surface and add a minimal layer of fill over the site to protect any archeological resources if necessary. Incorporate typical local building materials utilized during the period when the building was standing, such as stone or brick, but

differentiate the foundation outline from historic features. Refer to Figure 4-52 and Figure 4-49.

- *Three-dimensional frame structures:* When the overall dimensions, roofline, and massing of a missing building or structure are known and of great importance for understanding the significance of the cultural landscape, consider developing a three-dimensional "ghost structure" on the site. This approach should only be used in very specific instances and should not be applied widely. Refer to Figure 4-51 and Figure 4-52.
- *Vegetation patterns:* Consider altering vegetation management regimes, such as mowing patterns or planting palettes, to identify the location of the missing prism or berm. For example, utilize tall grasses or groupings of shrubs to identify the missing berm by creating a vertical pattern in the landscape. Mowing patterns creating a depression relative to other vegetation may represent the missing prism. Refer to Figure 4-53 and Figure 4-54.
- *Repeated vertical elements:* Utilize repeated vertical elements such as bollards, poles, or fencing to identify the location of the missing berm or towpath route. Select materials compatible with the historic character of the landscape, such as wood, stone, or weathered metal. Refer to Figure 4-55.
- *Waysides or matching photos*: Provide interpretive materials that align historic imagery with existing locations to help visitors visualize missing features in the landscape.

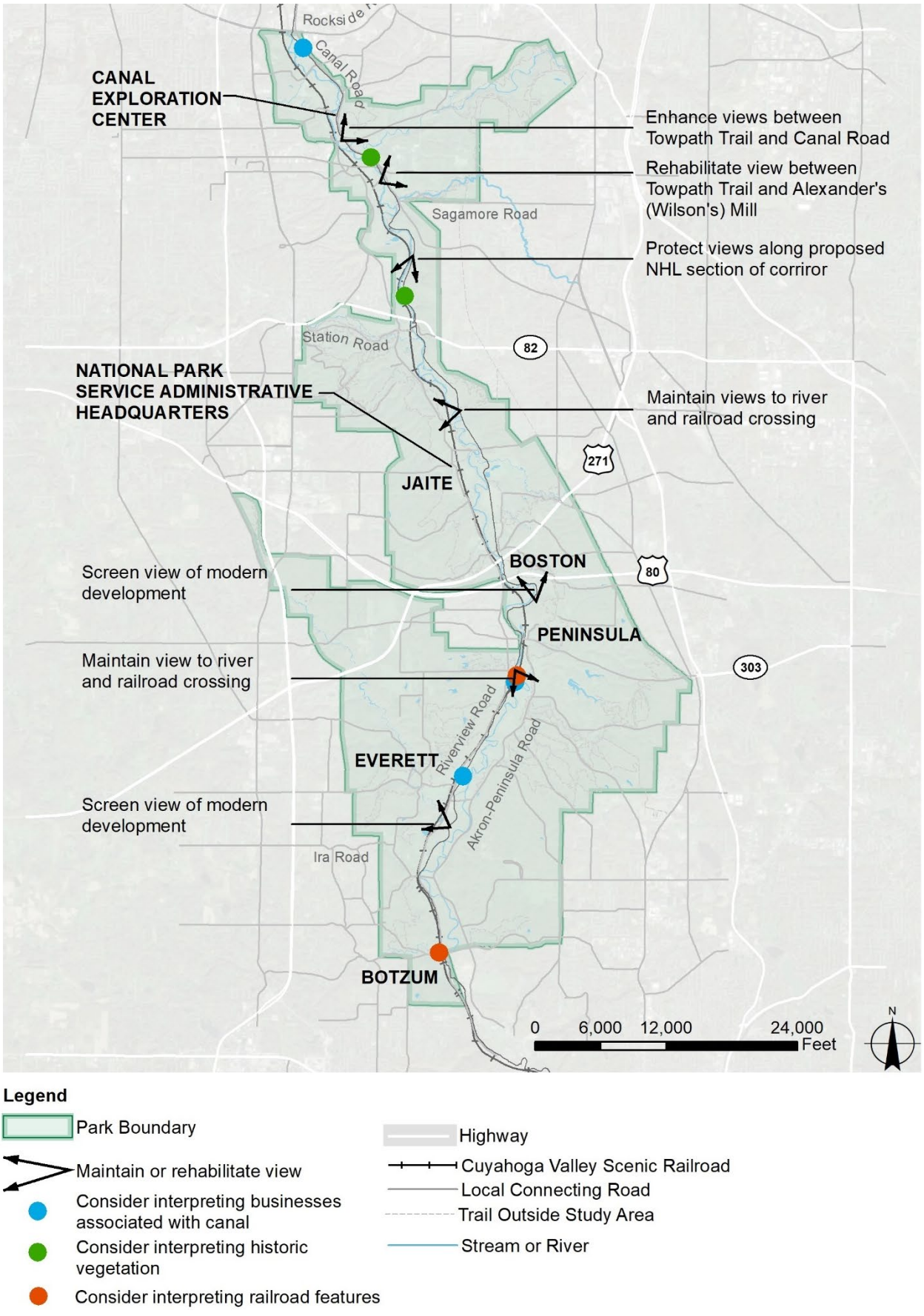


Figure 4-48: Recommended new interpretive nodes and views treatment.



Figure 4-49: Building footprint outline at Washington Birthplace (NP Plan, Steven L. Markos [2016]).



Figure 4-50: On-grade foundation outline interpretive feature at Cascade Locks Park, Akron (mapio.net).



Figure 4-51: Three-dimensional "ghost" structure at St. Mary's City (Magruder's Landing).



Figure 4-52: Three-dimensional "ghost" structures and chimneys at Smokey Hollow Memorial (WTXL).



Figure 4-53: Linear mowing pattern identifying interpretive feature at Petersburg National Battlefield (Towingsilver.com).



Figure 4-54: Linear shrub massing can use specific plant form, scale, color, or texture, to identify former locations of missing alignments in the landscape (Bobbie's Green Thumb).



Figure 4-55: Repeated metal elements identifying missing linear feature (Berlin Wall, Buisson) (Stiftung-Berliner Mauer, stiftung-berliner-mauer.de/de).

Treatment Guidance by Segment

This section identifies general application of the treatment types presented in the Overall Study Area Treatment Guidelines to each of the seven segments of the 22-mile study area. Location and existing condition for each segment are described in Chapter 3 (see pages 3.51–3.161).

Segment 1: Unwatered Canal from Ira Road to Botzum Trailhead

Treatment for Segment 1 emphasizes preservation of contributing canal components and increased interpretation and representation of missing features. The treatment is intended to increase visitor understanding of canal elements and landscape change since the end of the period of significance within this segment, paired with increased visitation at the southernmost end of the park encouraged through the concurrent CAP project. Recommended treatment for Segment 1 is illustrated on RT-2 (see page 4.59) and Figure 4-56.

Buildings and Structures

- Preserve concrete and stone structures. Refer to the Overall Study Area Buildings and Structures Guidelines. Contributing stone and concrete structures within Segment 1 include:
    - Lock 24 and spillway (Niles/Botzum Lock)
    - Lock 25 and spillway (Mudcatcher Lock)
    - Yellow Creek Culvert
    - Ira Culvert

Circulation

- Maintain the existing Botzum Trailhead and continue to encourage increased use of the trailhead.
- Install a Towpath Trail surface that is differentiated from the surface on the historic towpath route. Refer to Overall Study Area Circulation and Access Types.

Natural Systems, Climate, Topography, and Vegetation

- Evaluate drainage to the Yellow Creek Culvert and Ira Culvert. Work with civil engineer to identify appropriate location and size of new supplemental culvert(s), if needed, based on frequency of design storm, drainage area, and design flow, while preserving the historic fabric of contributing culverts. Refer to Overall Study Area Natural Systems, Climate, and Topography Guidelines.
- Manage existing wetlands and floodplain forests for ecosystem health. Refer to Overall Study Area Vegetation Guidelines.

Archeological Sites

- Document, maintain, and monitor the condition of the mound feature near Botzum.

Small-Scale Features

- Continue to maintain existing site furnishings, signs, and guardrails in good condition. When features require replacement, use a palette consistent with the historic character of the canal corridor. Refer to Overall Study Area Small-Scale Features Treatment Types.

Visitor Experience

- Interpret the missing historic towpath and prism alignment using vegetation patterns, repeated vertical elements, or waysides. Refer to Overall Study Area Visitor Experience Types.
- Consider expanding interpretation of railroad features where the railroad is adjacent to the trail.

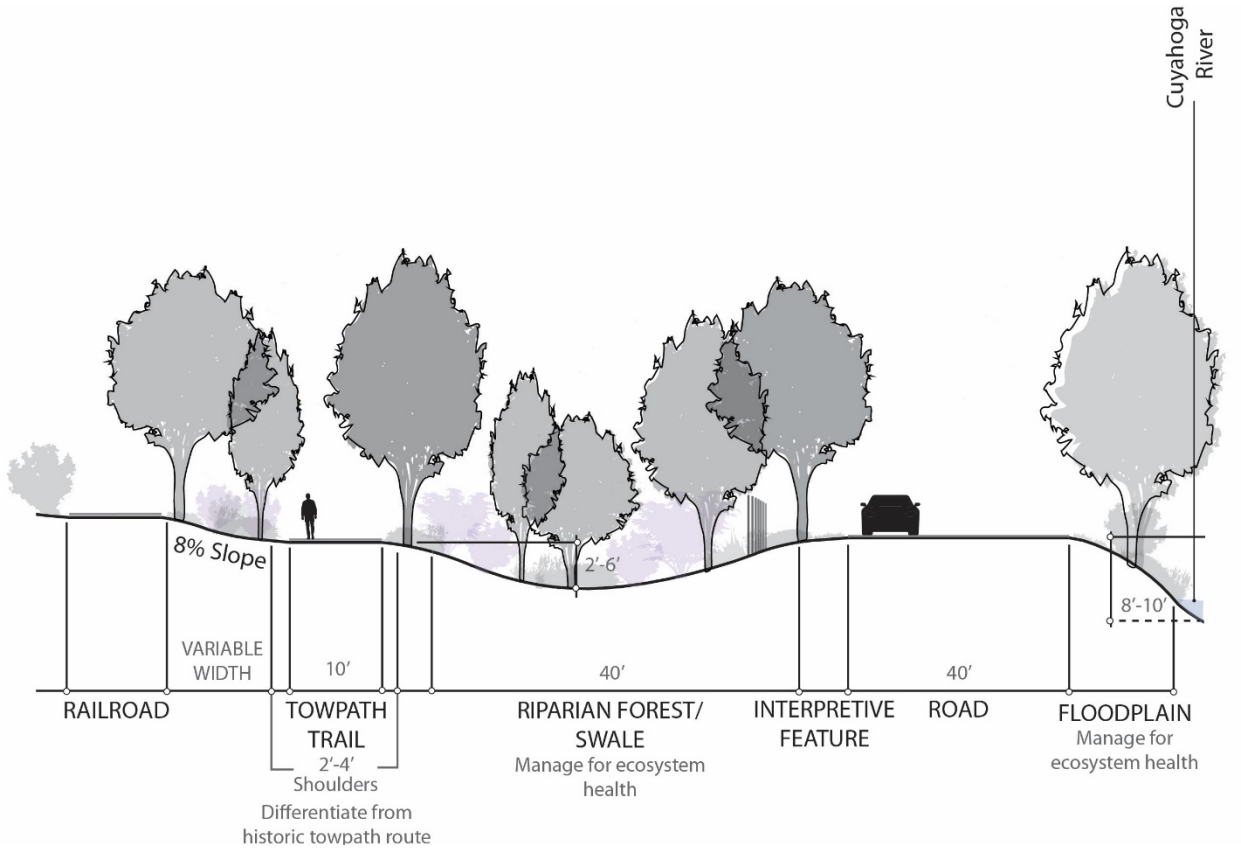
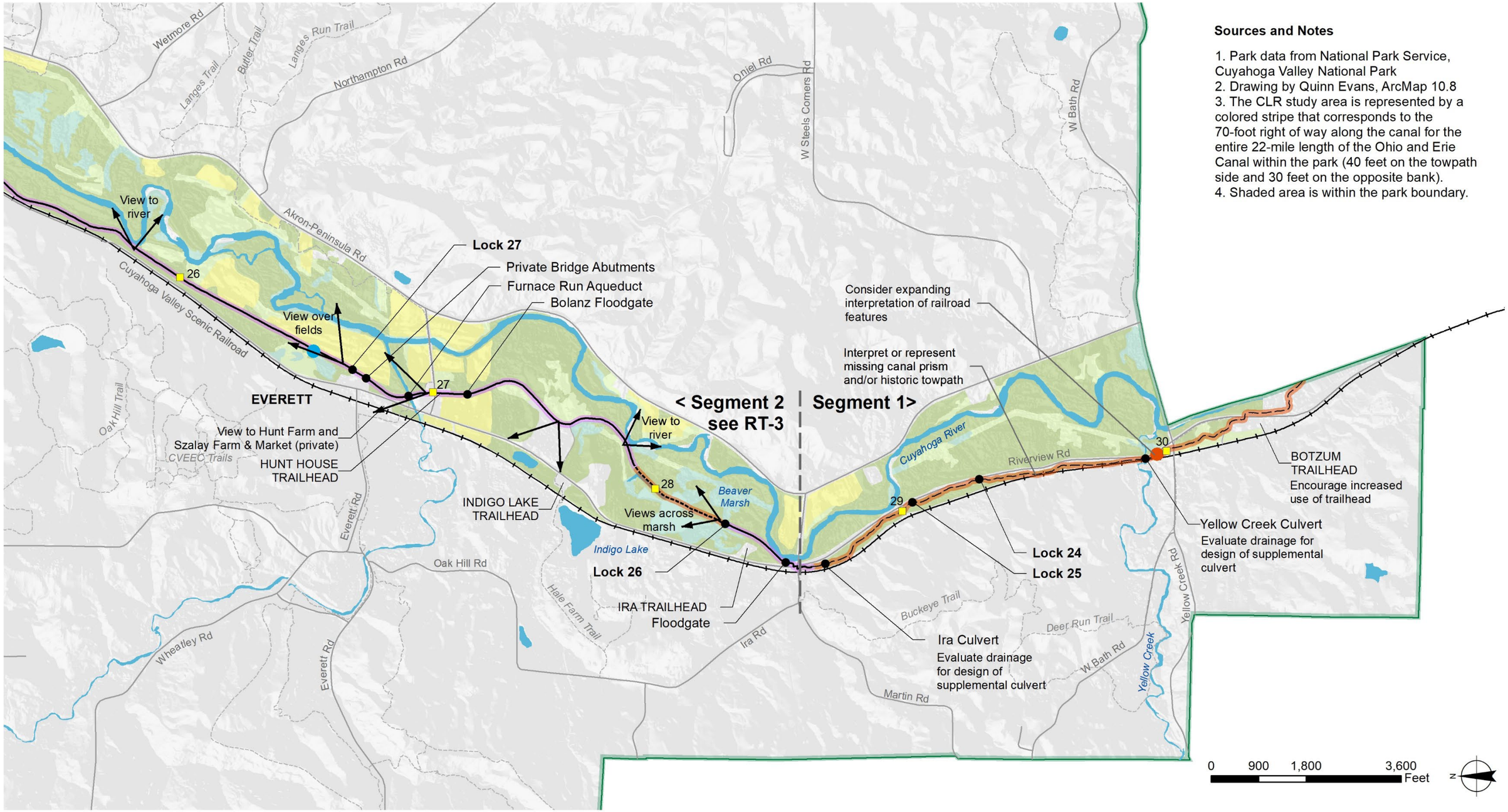


Figure 4-56: Proposed typical treatment in Segment 1.



Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.

Legend

Boundaries
- CVNP Boundary

Natural Systems
- River, Stream, or Pond

Buildings and Structures
- Preserve Concrete or Stone Canal Structure

Small-Scale Features
- Maintain Mile Marker (Nautical)

Views
- Maintain or Rehabilitate View

Circulation
- Trail outside study area
- Local Connecting Road (outside study area)
- Railroad (outside study area)
- Connect where berm is missing
- Differentiate from historic route
- Rehabilitate historic character

Interpretive Nodes
- Consider interpreting businesses associated with canal
- Consider interpreting railroad features

Vegetation
- Existing wetland
- Existing forest
- Existing agriculture
- Existing successional vegetation
- Manage existing wetlands and floodplain forest
- Visualize canal corridor and prism

Cuyahoga Valley National Park Ohio & Erie Canal
Cultural Landscape Report

Segment 1
Recommended Treatment

October 2022

NPS No. CUVA 644 177149 **RT-2**

Segment 2: Unwatered Canal from Ira Road to Peninsula (Lock 29)

Treatment for Segment 2 balances enhancing visibility of the entire canal corridor with protection of the Beaver Marsh, a high-quality 70-acre wetland north of the Ira Trailhead. Due to varied condition and historic integrity within the segment, multiple treatment types are applied for circulation and vegetation to improve visitor experience and understanding of the canal. In addition, recommendations are provided to strengthen visual and interpretive connections with compatible adjacent land uses and screen modern development that impacts the historic character of the segment. Recommended treatment for Segment 2 is illustrated on RT-3 (see page 4.63) and Figure 4-57 and Figure 4-58.

Buildings and Structures

- Preserve concrete and stone structures. Refer to Overall Study Area Buildings and Structures Guidelines. Contributing structures within Segment 2 include:
    - Lock 28 (Deep Lock)
    - Railroad bridge retaining wall
    - Arch Culvert
    - Lock 27 (Johnny Cake Lock)
    - Private bridge
    - Furnace Run Aqueduct
    - Bolanz Floodgate
    - Lock 26 (Pancake Lock)
    - Floodgate
- Monitor the concrete cap on Lock 26 for continued stabilization performance.
- Rehabilitate earthen structures including the canal prism and large basin. Refer to Overall Study Area Buildings and Structures Guidelines.

Circulation

- Represent the historic character of the towpath where the Towpath Trail occupies its historic location on the berm north and south of Beaver Marsh. Refer to Overall Study Area Circulation Guidelines.
- Continue to use boardwalks along the historic alignment where the berm is missing at Beaver Marsh. Refer to Overall Study Area Circulation and Access Types.

Natural Systems, Climate Change, Topography, and Vegetation

- Enhance visibility of the canal prism by retaining water where possible. Refer to Overall Study Area Natural Systems and Vegetation Types.
- Manage existing wetlands and floodplain forest where prism and berm are no longer extant at Beaver Marsh. Refer to Overall Study Area Natural Systems and Vegetation Types.

Small-Scale Features

- Continue to maintain existing site furnishings, signs, and guardrails in good condition. When features require replacement, use a palette consistent with the historic character of the canal corridor. Refer to Overall Study Area Small-Scale Features Treatment Types.

Visitor Experience

- Manage vegetation to screen views of the mobile home park north of the Ira Trailhead.
- Manage vegetation to maintain views to the river and railroad crossing at Lock 28.
- Consider expanding interpretation of businesses associated with canal at Lock 28 (Deep Lock Quarry).

- Consider expanding interpretation of railroad features at Lock 28.

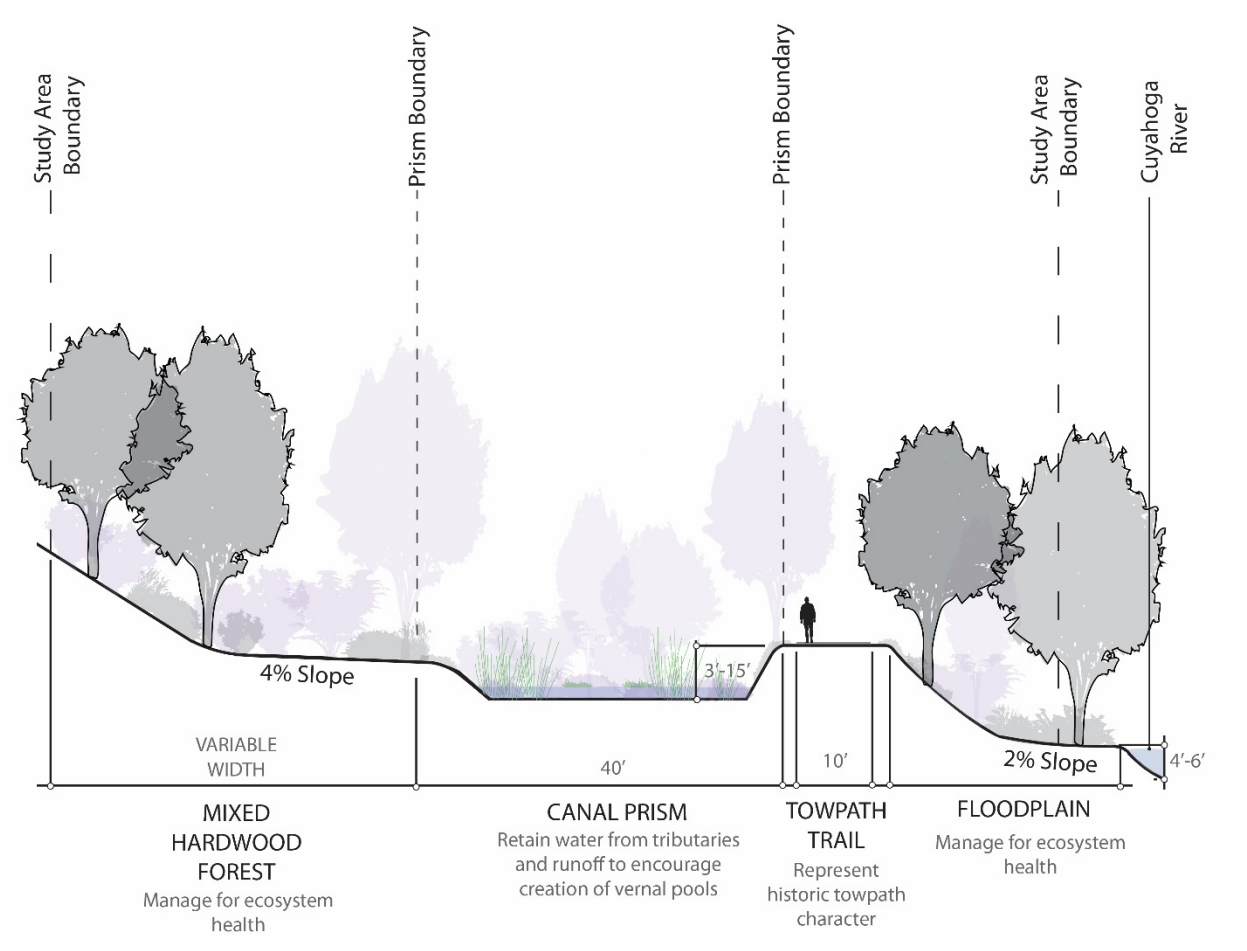


Figure 4-57: Proposed typical treatment in Segment 2 where the prism and berm are intact.

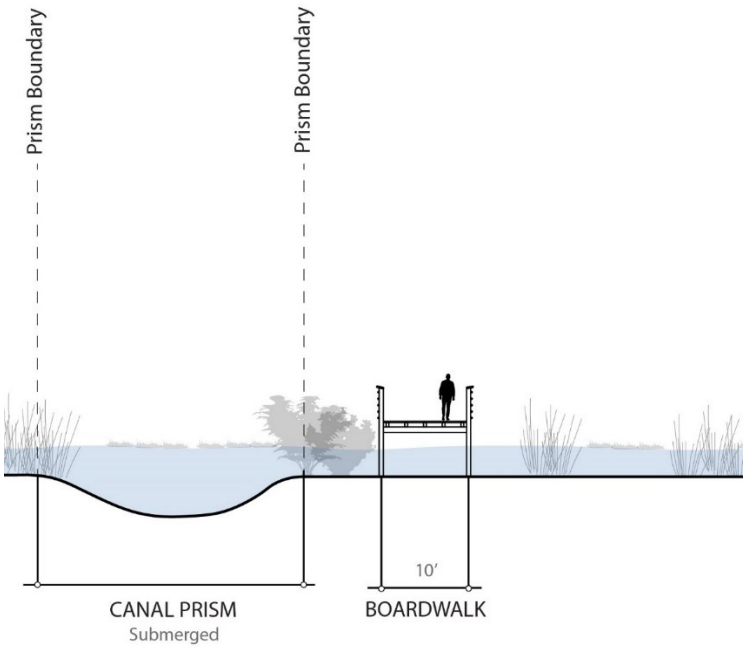


Figure 4-58: Proposed treatment at Beaver Marsh.

Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.

Screen modern development
Lock 31 and Spillway
Interpret or represent missing canal prism and/or towpath
Stumpy Basin
View to river
RT-8
View to river and Peninsula
Maintain view to river and railroad crossing
Lock 28 and Spillway
Railroad Bridge Retaining Wall
Peninsula Feeder Complex
Lock 30 and Spillway
Consider adding benches
View to river
Peninsula Basin
PENINSULA DETAIL AREA
Lock 29 and Peninsula Aqueduct
Large Basin
Arch Culvert
Expand interpretation of Deep Lock Quarry
Expand interpretation of railroad
View to river
Interpret Village of Everett
Lock 27
Private Bridge
Furnace Run Aqueduct
Bolanz Floodgate
View over fields
Screen views of adjacent development
EVERETT
View to Hunt House and Szalay Farm & Market (private)
INDIGO LAKE TRAILHEAD
View to river
View across marsh
Beaver Marsh
Indigo Lake
Lock 26
Monitor concrete cap
IRA TRAILHEAD
Floodgate
Ira Culvert
Evaluate drainage for design of supplemental culvert
Segment 3 >
Segment 2 >
< Segment 2
22
23
24
25
26
27
28
Valley Trail
Quarry Trail
Tree Farm Trail
Plateau Trail
Cuyahoga River
Cuyahoga Valley Scenic Railroad
Akron-Peninsula Rd
Wetmore Trail
Wetmore Rd
Salt Run Trail
Quick Rd
Butler Trail
Langes Run Trail
Northampton Rd
Oak Hill Trail
CVEEC Trails
Major Road
Oak Hill Rd
Scobie Rd
Everett Rd
Furnace Run
Wheatley Rd
Hale Farm Trail
Ira Rd
Stine Rd
80
271
0 900 1,800 3,600 Feet

Legend

Boundaries
- CVNP Boundary
- Detail Area

Natural Systems
- River, Stream, or Pond

Buildings and Structures
- Preserve Concrete or Stone Canal Structure
- Rehabilitate Basin

Views
- Maintain or Rehabilitate View

Circulation
- Trail outside study area
- Local Connecting Road (outside study area)
- Railroad (outside study area)
- Highway (outside study area)
- Connect where berm is missing
- Differentiate from historic route
- Rehabilitate historic character

Interpretive Nodes
- Consider interpreting businesses associated with canal
- Consider interpreting railroad features

Small-Scale Features
- Maintain Mile Marker (Nautical)

Vegetation
- Existing wetland
- Existing forest
- Existing agriculture
- Existing successional vegetation
- Manage existing wetlands and floodplain forest
- Visualize canal corridor and prism

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Segment 2 and Segment 3 Recommended Treatment

October 2022

Segment 3: Unwatered Canal from Peninsula (Lock 29) to Interstate 80

Treatment for Segment 3 addresses the canal corridor's route through a narrow floodplain between Peninsula and Stumpy Basin. This segment includes a variety of conditions, including locations where the berm and prism are intact, portions of the canal corridor that have been destroyed by flooding and encroachment by the Cuyahoga River, and the high-quality wetland environment of the basin. Different treatment types are applied to each condition to enhance visibility and interpretation of the canal corridor while protecting contributing features and aspects. The treatment also recommends screening modern development that impacts the historic character of the segment and adding benches to support visitor comfort along the trail. Recommended treatment for Segment 3 is illustrated on RT-3 (see page 4.63) and Figure 4-59.

Buildings and Structures

- Preserve concrete and stone structures including Lock 30 and Spillway, the Peninsula Feeder Complex, and Lock 31 and Spillway. Refer to Overall Study Area Buildings and Structures Guidelines.
- Rehabilitate the canal prism, where present. Refer to Overall Study Area Buildings and Structures Guidelines.

Circulation

- Represent the historic character of the towpath where the trail occupies its historic location, primarily between Lock 30 and Lock 31. Refer to Overall Study Area Circulation Guidelines.
- Repair the boardwalk at Stumpy Basin and continue to maintain the trail route along its historic alignment. Refer to Overall Study Area Circulation Guidelines.
- Where the trail does not follow the historic towpath alignment between Lock 30 and mile marker 23, install a trail surface that is differentiated from the historic towpath route. Refer to Overall Study Area Circulation Guidelines.

Natural Systems, Climate Change, Topography, and Vegetation

- Enhance visibility of the canal prism by retaining water where possible. Where it is not feasible to retain water within the canal prism, continue to remove invasive understory vegetation to improve visual connections between the Towpath Trail and prism. Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines.
- Manage existing wetlands and floodplain forest where prism and berm are no longer extant between Lock 30 and mile marker 23, and at Stumpy Basin. Refer to Overall Study Area Vegetation Guidelines.

Small-Scale Features

- Continue to maintain existing site furnishings, signs, and guardrails in good condition. When features require replacement, use a palette consistent with the historic character of the canal corridor. Refer to Overall Study Area Small-Scale Features Treatment Guidelines.
- Consider adding accessible benches between Peninsula and Lock 30.

Visitor Experience

- Where the prism and berm are no longer extant between Lock 30 and mile marker 23, interpret the historic towpath and prism alignment using repeated vertical elements or waysides and matching photos. Refer to Overall Study Area Visitor Experience Types.

- Add limited plantings of native woody vegetation to screen views of the modern interstate immediately north of Stumpy Basin, while retaining key views of the Cuyahoga River from the Buckeye Trail.

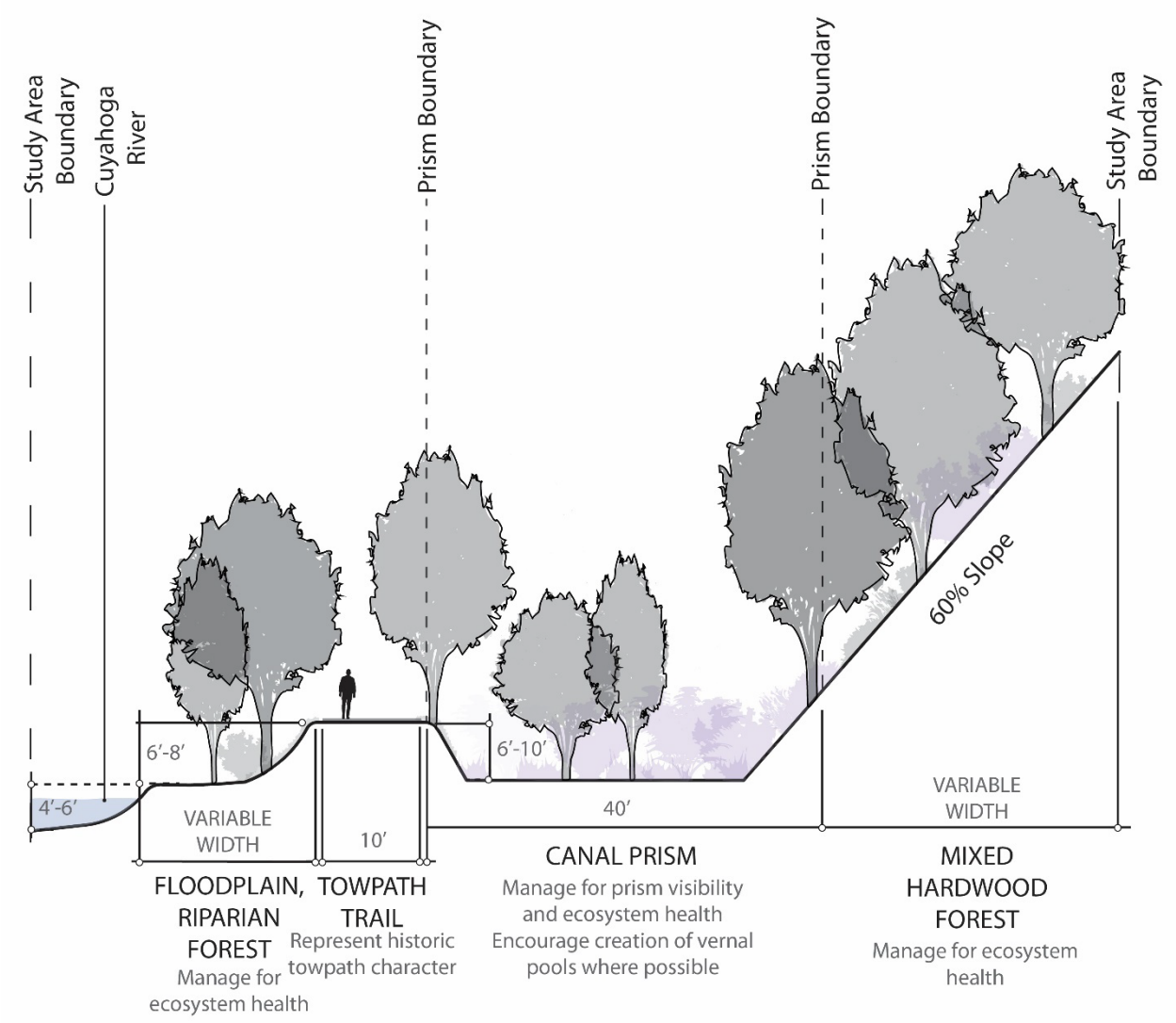


Figure 4-59: Proposed typical treatment in Segment 3 where canal prism is present.

Segment 4: Unwatered Canal from Interstate 80 to Boston (Lock 32)

Treatment for Segment 4 proposes enhanced interpretation to assist visitors in understanding canal components missing from this section of the canal corridor. Recommended treatment for Segment 4 is illustrated on RT-4 (see page 4.71) and Figure 4-60.

Circulation

- Install a trail surface that is differentiated from the surface on the historic towpath route. Refer to Overall Study Area Circulation and Access Types.

Natural Systems, Climate Change, Topography and Vegetation

- Manage existing wetlands and floodplain forest where prism and berm are no longer extant. Refer to Overall Study Area Natural Systems and Vegetation Types.

Small-Scale Features

- Continue to maintain existing site furnishings, signs, and guardrails in good condition. When features require replacement, use a palette consistent with the historic character of the canal corridor. Refer to Overall Study Area Small-Scale Features Treatment Types.
- Consider adding accessible benches south of I-271.

Visitor Experience

- Interpret the historic towpath and prism alignment using vegetation patterns, repeated vertical elements, or waysides and matching photos. Refer to Overall Study Area Visitor Experience Types.

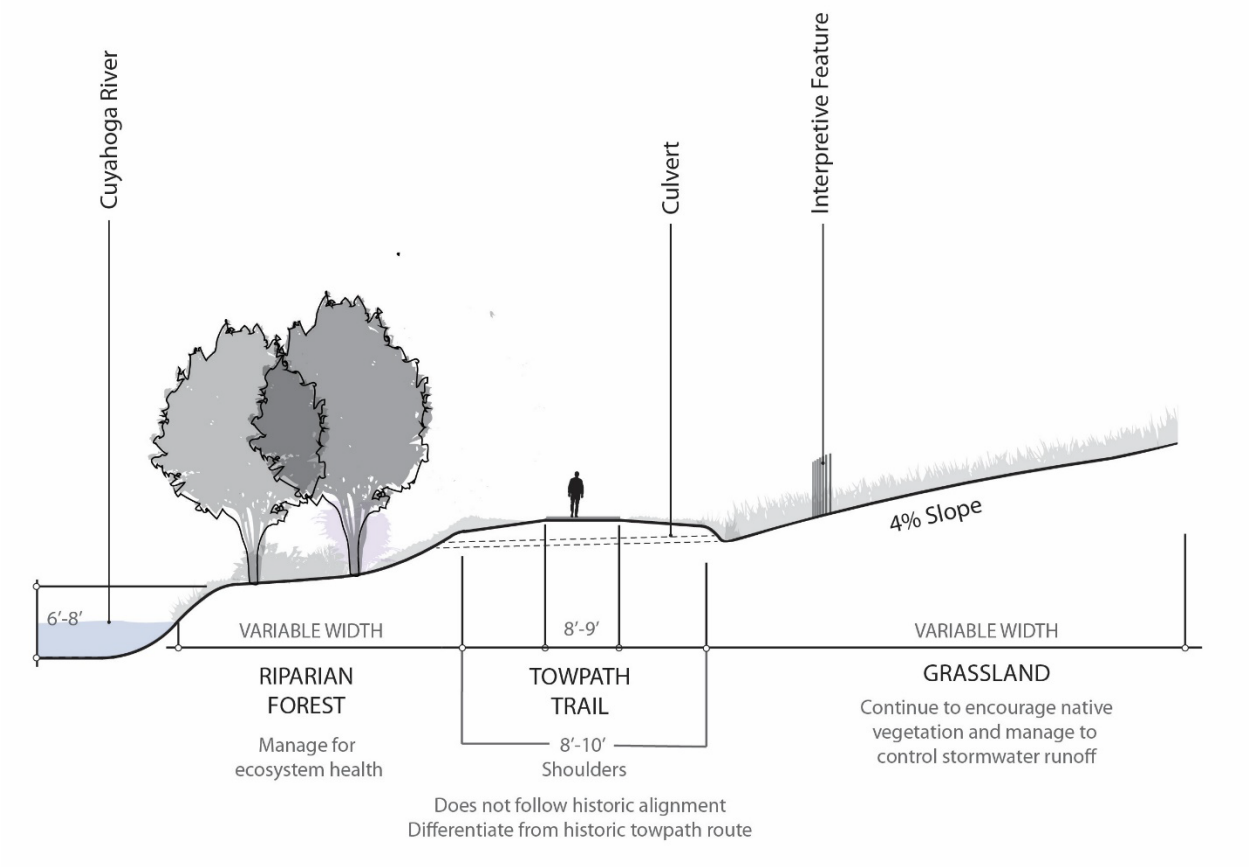
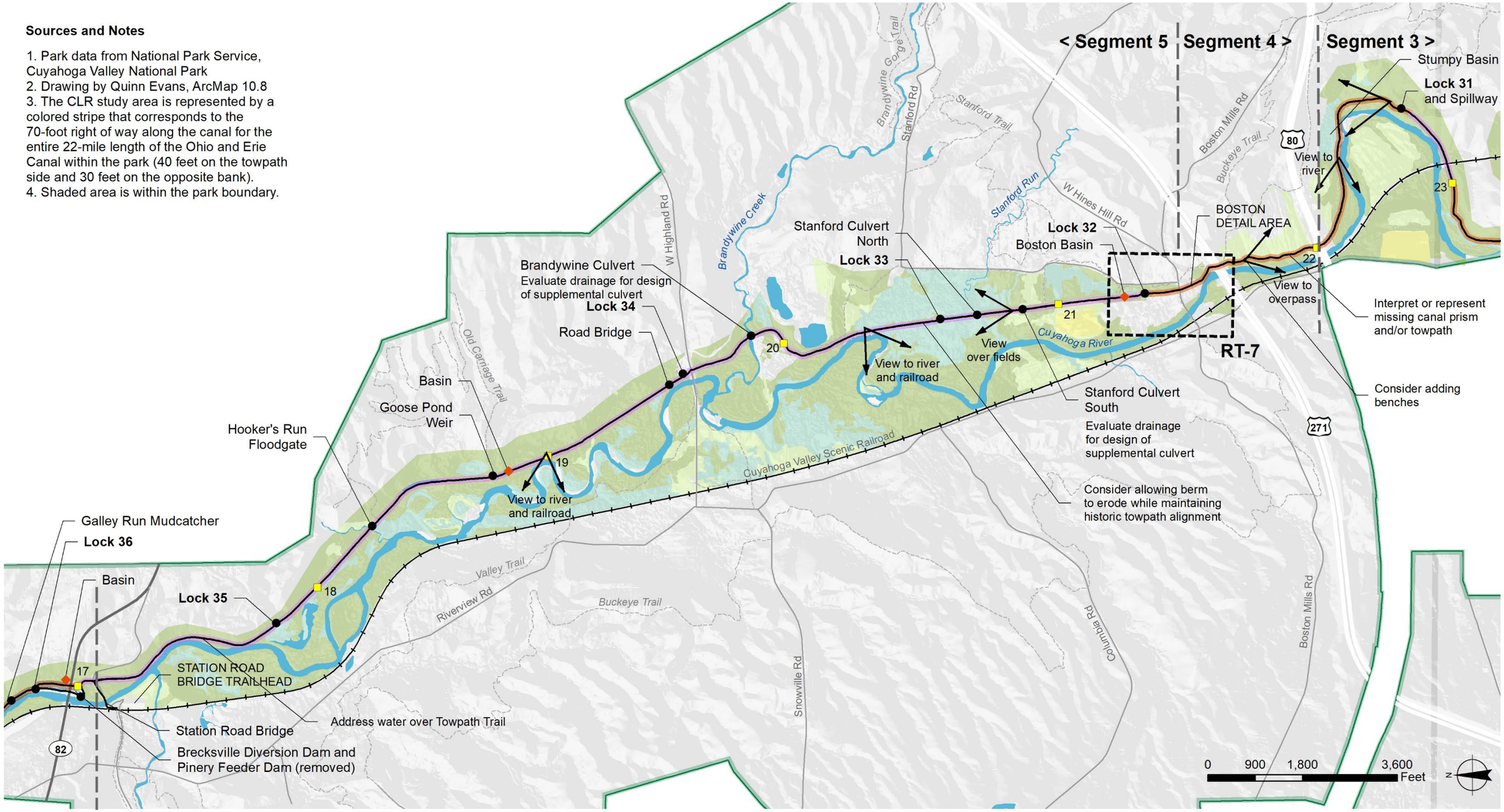


Figure 4-60: Proposed typical treatment in Segment 4.

Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.



Legend

Boundaries
- CVNP Boundary
- Detail Area

Natural Systems
- River, Stream, or Pond

Buildings and Structures
- Preserve Concrete or Stone Canal Structure
- Rehabilitate Basin

Views
- Maintain or Rehabilitate View

Circulation
- Trail outside study area
- Local Connecting Road (outside study area)
- Railroad (outside study area)
- Highway (outside study area)
- Connect where berm is missing
- Differentiate from historic route
- Rehabilitate historic character

Small-Scale Features
- Maintain Mile Marker (Nautical)

Vegetation
- Existing wetland
- Existing forest
- Existing agriculture
- Existing successional vegetation

- Rehabilitate the vegetative character of the canal corridor
- Visualize canal corridor and prism
- Manage existing wetlands and floodplain forest

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Segment 4 and Segment 5 Recommended Treatment

October 2022

NPS No. CUVA 644 | 177149

Segment 5: Unwatered Canal from Boston (Lock 32) to Station Road Bridge

Treatment for Segment 5 emphasizes preservation of contributing concrete and stone structures and rehabilitation of the prism and basins to improve visibility and interpretation. Where possible, the guidelines recommend retaining water within the prism either through creating vernal pools or maintaining existing wetlands. As the Towpath Trail follows the historic route of the towpath throughout this segment, the recommendations propose representing the character of the towpath through a chip seal surface with irregular edges. Additional recommendations are provided to protect archeological sites and significant views along the corridor. Treatment for Segment 5 is illustrated on RT-4 (see page 4.71) and Figure 4-61.

Buildings and Structures

- Preserve concrete and stone structures. Refer to Overall Study Area Buildings and Structures Types. Contributing structures within Segment 5 include:
    - Lock 35 and spillway
    - Hooker's Run Floodgate
    - Goose Pond Waste Weir/Floodgate
    - Basin
    - Road Bridge over Lock 34 Wasteway
    - Lock 34 and spillway
    - Brandywine Creek Culvert
    - Lock 33 and spillway
    - Stanford Creek Culvert North
    - Stanford Creek Culvert South
- Rehabilitate earthen structures. Refer to Overall Study Area Buildings and Structures Guidelines.

Circulation

- Represent the historic character of the towpath where it occupies its historic location. Refer to Overall Study Area Circulation and Access Types.

Natural Systems, Climate Change, Topography, and Vegetation

- Enhance visibility of the canal prism by retaining water where possible. Refer to Overall Study Area Natural Systems and Vegetation Types.
- Continue to maintain existing wetland areas within the prism for ecosystem health. Remove invasive species and retain snags to encourage habitat use.
- In limited locations where the berm cannot be protected from the river, allow the berm to erode while maintaining the historic alignment of the towpath using boardwalks or bridges. A potential location for this action has been identified north of Lock 33 (Red Lock). Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines.
- Evaluate drainage to the Brandywine Culvert and Stanford Creek North and South Culverts. Work with civil engineer to identify appropriate location and size of new supplemental culvert(s), if needed, based on frequency of design storm, drainage area, and design flow while preserving the historic fabric of contributing culverts. Refer to Overall Study Area Natural Systems, Climate, and Topography Guidelines.
- In locations where water persistently flows over the Towpath Trail, consider installing a low-visibility ditch and surface drain or French drain to divert water under the trail surface (refer to Figure 4-63). Evaluate if additional drainage solutions are necessary following implementation of treatment recommendations to retain water within the canal prism.

Archeological Sites

- Document, preserve, and monitor the Jaite Mill site.

Small-Scale Features

- Continue to maintain existing site furnishings, signs, and guardrails in good condition. When features require replacement, use a palette consistent with the historic character of the canal corridor. Refer to Overall Study Area Small-Scale Features Treatment Types.

Visitor Experience

- Maintain existing views to the river and railroad by managing vegetation to ensure visual connections from the west side of the Towpath Trail while screening substantial modern development.
- Maintain existing broad views over fields between mile marker 21 and mile marker 22 by retaining existing vegetation and spatial patterns in this area.

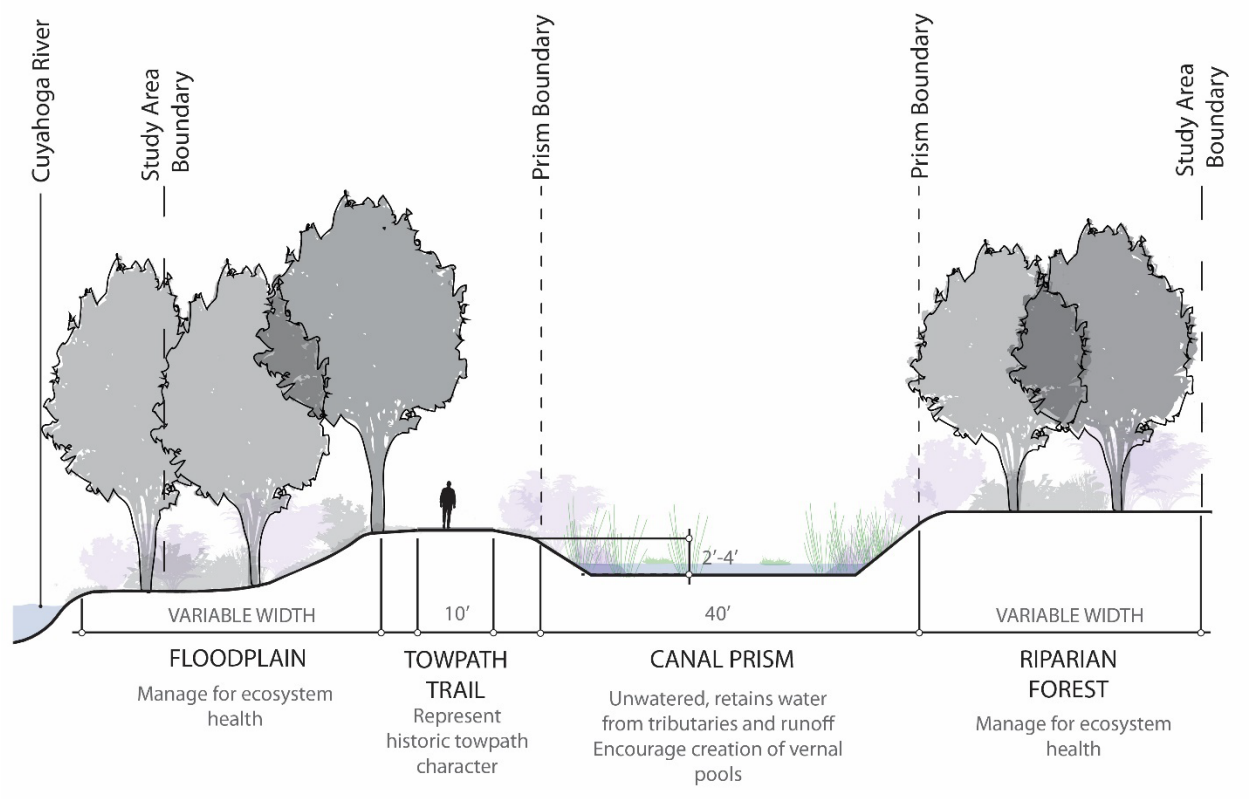


Figure 4-61: Proposed typical treatment in Segment 5.

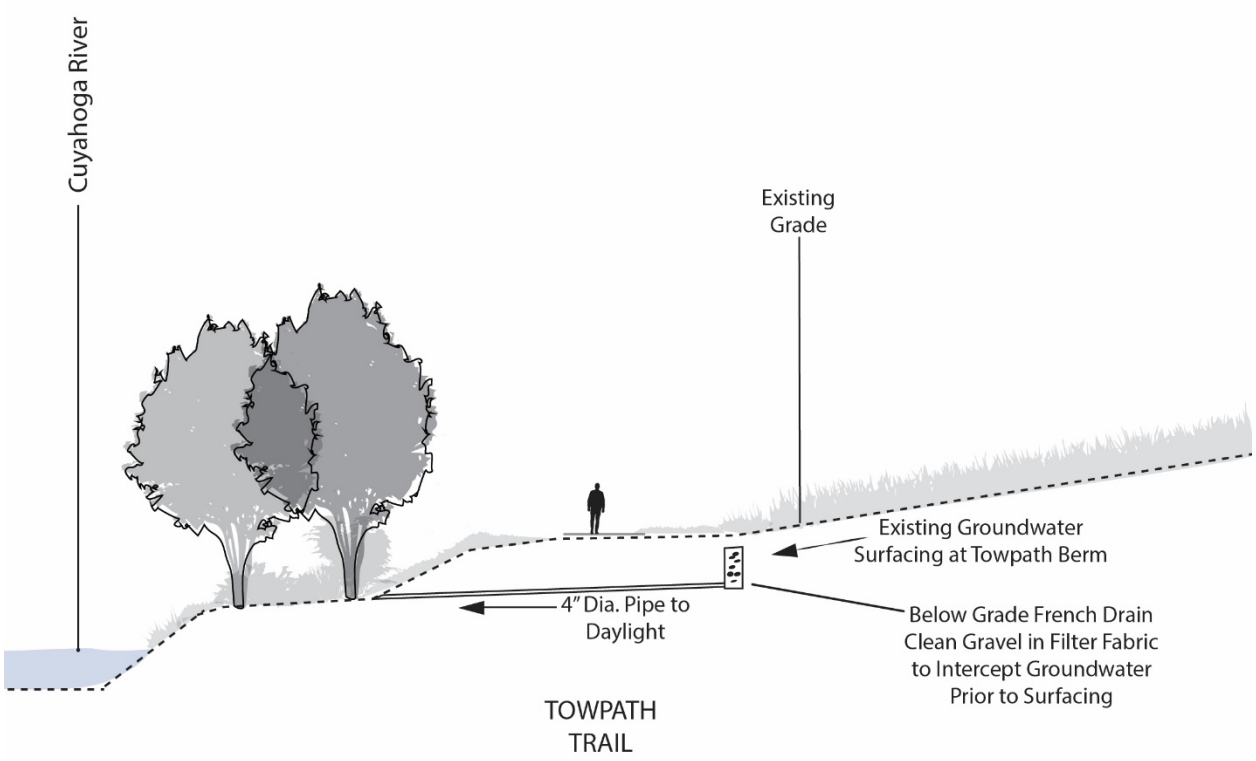


Figure 4-62: Address groundwater impacting Towpath Trail surface using below-grade French drain. (SKDG, 2021).

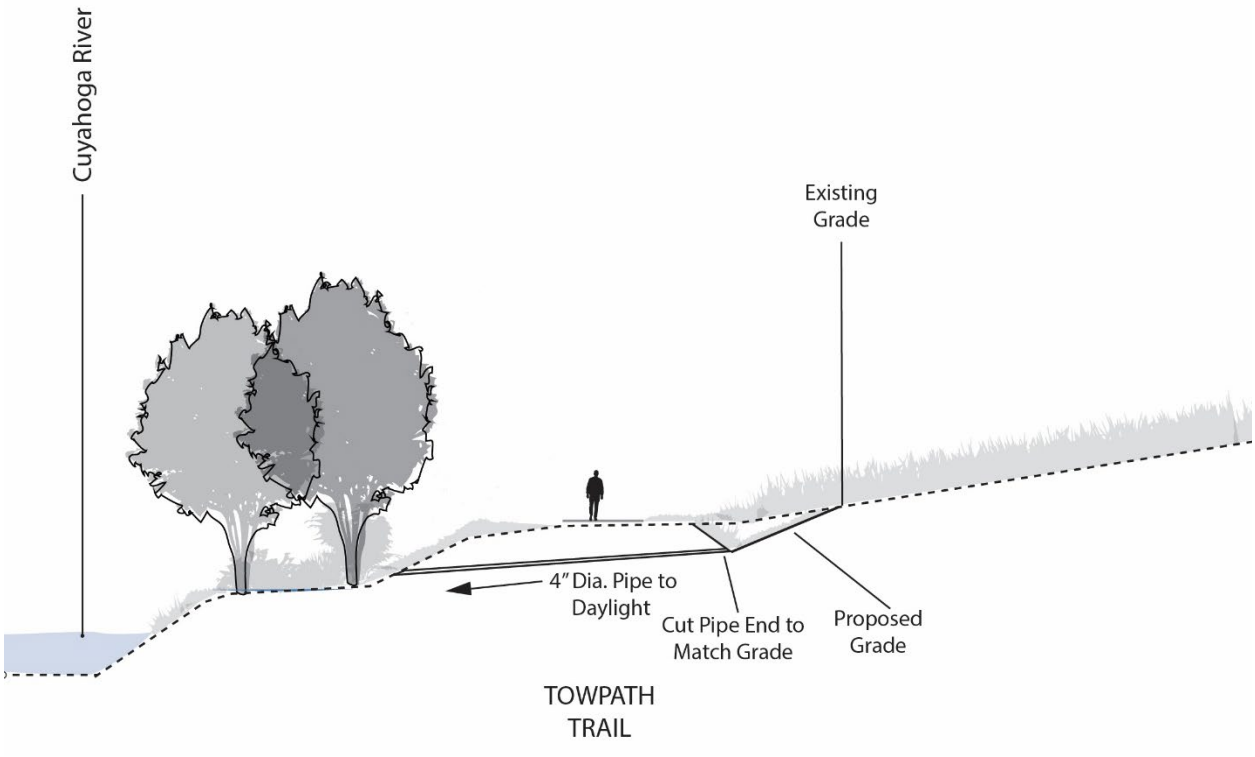


Figure 4-63: Install ditch and surface drain to redirect surface drainage and/or groundwater under Towpath Trail (SKDG, 2021).

Segment 6: Watered Canal from Station Road Bridge to Sagamore Creek

Treatment for Segment 6 emphasizes protection of contributing features and aspects within this highly intact section of the canal corridor. As part of these efforts, this CLR recommends updating the National Historic Landmark Nomination to include the cultural landscape within Segment 6.

The historic condition of the landscape will be emphasized through rehabilitation of canal structures including the lock, waste structures, and mudcatcher to support the "watered" condition of the canal following installation of the pump at the southern end of the prism. Modifications to the Towpath Trail surface and surrounding vegetation patterns are proposed to represent historic character and spatial relationships within the segment while protecting the berm from erosion within Pinery Narrows. Recommended treatment for Segment 6 is illustrated on RT-5 (see page 4.77) and Figure 4-64.

Buildings and Structures

- Rehabilitate concrete and stone structures in the "watered" section of the canal corridor.
    - Engage an archeologist and structural engineer to evaluate underground components of Lock 36 to determine potential for the feature to be restored or preserved in place.
    - Engage a structural engineer to evaluate the potential to restore the Galley Run Mudcatcher, including the likelihood of sedimentation removal to destabilize the historic fabric. Follow guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for preservation of existing components of the feature.[35]
    - Rehabilitate the two waste structures to return these features to a state of utility, following guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for preservation of existing components of the feature.[36] Modify slopes and provide railings at Sagamore Run Waste Weir to meet ABAAS. Ensure that new work is reversible and differentiated from the historic fabric.
- Rehabilitate earthen structures including the prism, Pinery Feeder, and the basin south of Lock 36. Prioritize stabilization of the berm over river meandering. Refer to Overall Study Area Buildings and Structures Guidelines.

Circulation

- Represent the historic character of the towpath. Refer to Overall Study Area Circulation and Access Types.

Natural Systems, Climate Change, Topography, and Vegetation

- Rehabilitate the character of the canal corridor to represent vegetation and hydrologic patterns present during the period of significance. Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines and Overall Study Area Vegetation Guidelines.
- Selectively prune vegetation to enhance the view of the Galley Run Mudcatcher from the Towpath Trail.
- Regularly dredge the prism throughout Segment 6 as needed where siltation impacts the historic character of the cultural landscape, retaining limited wetland vegetation along the prism edges.

[35] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 543.

[36] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 543-546.

Small-Scale Features

- Continue to maintain existing site furnishings, signs, and guardrails in good condition. When features require replacement, use a palette consistent with the historic character of the canal corridor. Refer to Overall Study Area Small-Scale Features Treatment Types.

Visitor Experience

- Protect significant views along the entire segment. Continue to maintain woody vegetation to screen views of modern development at the north end of the segment.
- Consider interpreting historic vegetation within Pinery Narrows.

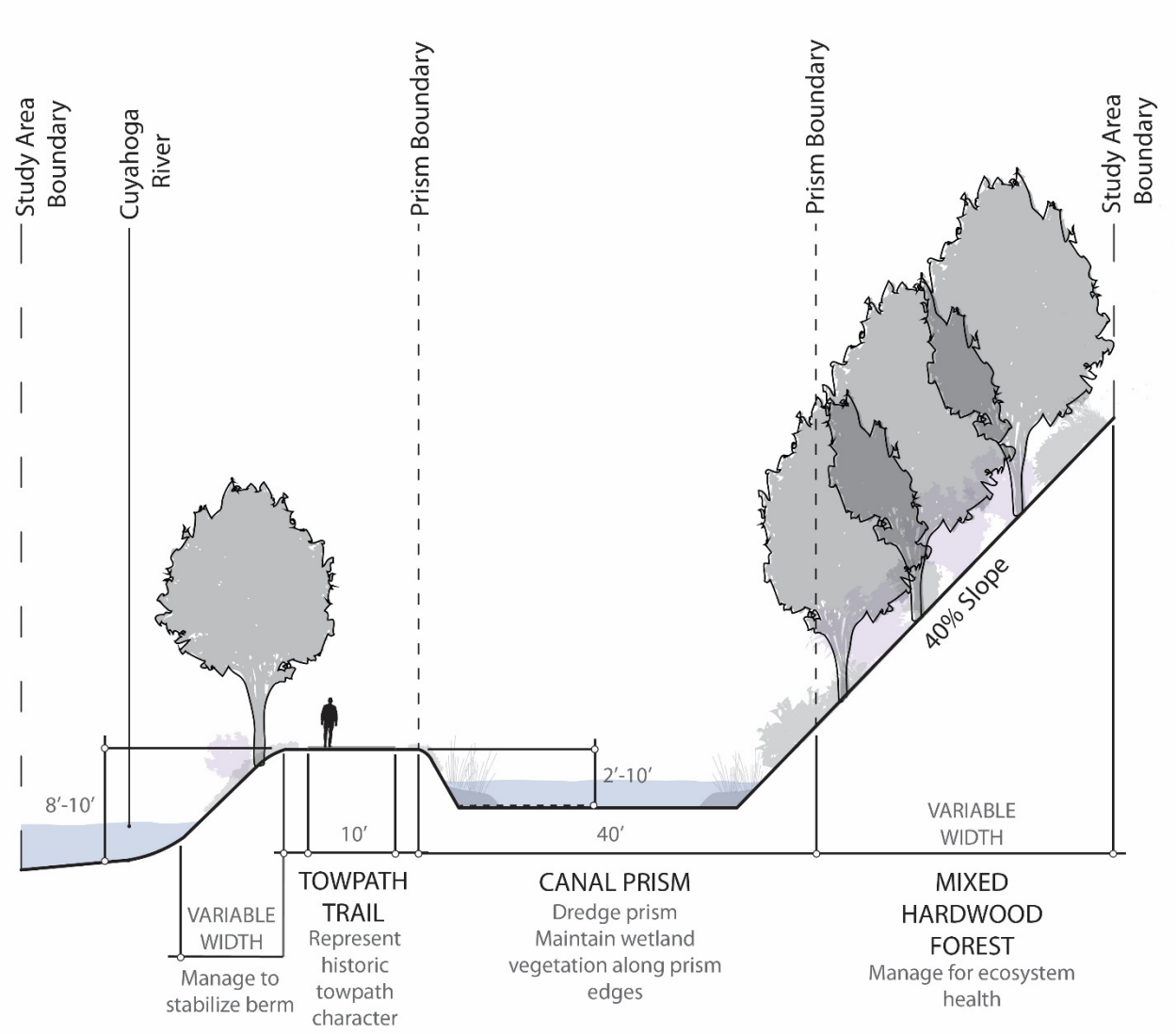
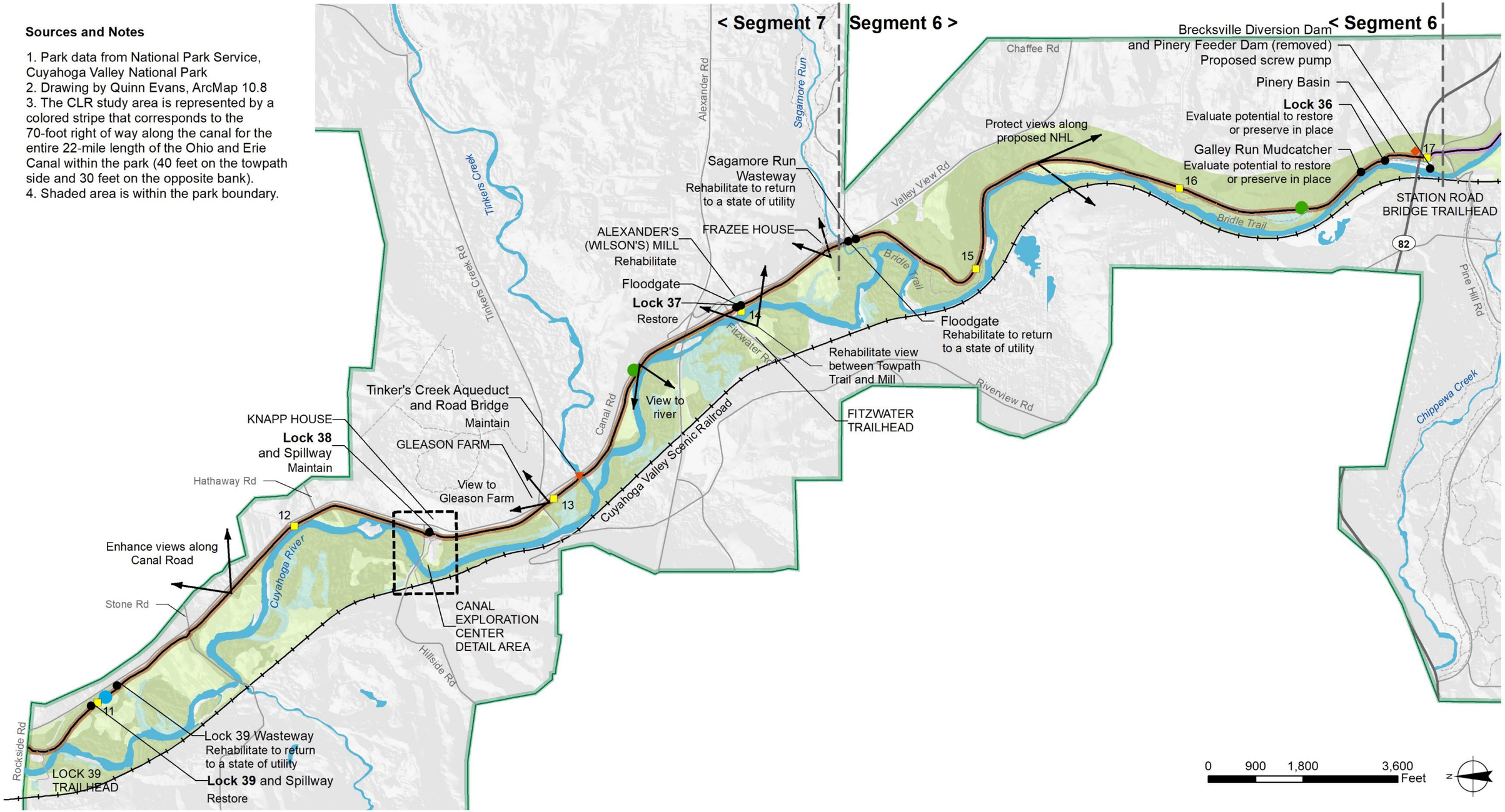


Figure 4-64: Proposed typical treatment in Segment 6.

Sources and Notes

1. Park data from National Park Service, Cuyahoga Valley National Park
2. Drawing by Quinn Evans, ArcMap 10.8
3. The CLR study area is represented by a colored stripe that corresponds to the 70-foot right of way along the canal for the entire 22-mile length of the Ohio and Erie Canal within the park (40 feet on the towpath side and 30 feet on the opposite bank).
4. Shaded area is within the park boundary.



Legend

Boundaries
- CVNP Boundary
- Detail Area

Natural Systems
- River, Stream, or Pond

Buildings and Structures
- Rehabilitate Lock, Waste Structure, or Feeder
- Rehabilitate Aqueduct
- Rehabilitate Basin

Small-Scale Features
- Maintain Mile Marker (Nautical)

Circulation
- Trail outside study area
- Local Connecting Road (outside study area)
- Railroad (outside study area)
- Highway (outside study area)
- Rehabilitate historic character

Vegetation
- Existing wetland
- Existing forest
- Existing agriculture
- Existing successional vegetation
- Rehabilitate the vegetative character of the canal corridor
- Visualize canal corridor and prism

Views
- Maintain or Rehabilitate View

Interpretive Nodes
- Consider interpreting businesses associated with canal
- Consider interpreting historic vegetation

Cuyahoga Valley National Park
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Segment 6 and Segment 7 Recommended Treatment

October 2022

Segment 7: Watered Canal from Lock 39 Trailhead to Sagamore Creek

Within Segment 7, treatment enhances the integrity, condition, and interpretation of the existing National Historic Landmark. The proposed update to the National Historic Landmark nomination is intended to improve documentation of the significance and integrity of the entire cultural landscape in this segment, including features and relationships beyond the extant buildings and structures.

Canal components including the locks, spillways, waste structures, mudcatcher, culverts, aqueduct, basins, the prism, and the berm are recommended to be rehabilitated or restored to support the "watered" condition of the prism following pump installation (see Segment 6) and improved visitor understanding of canal function. Modifications to the Towpath Trail surface and surrounding vegetation patterns are also proposed to represent historic character and spatial relationships and re-establish significant views while supporting visitor experience. Recommended treatment for Segment 7 is illustrated on RT-5 (see page 4.77) and Figure 4-65.

Buildings and Structures

- Rehabilitate concrete and stone structures in the "watered" section of the canal corridor.
    - Maintain Lock 38 and spillway in good working condition. Refer to the Canal Exploration Center Detail Area recommendations.
    - Follow guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for restoration of Locks 37 and 39.[37]
    - Maintain the Tinkers Creek Aqueduct in good condition. Refer to guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment*.[38]
    - Rehabilitate the waste weir south of Lock 39 to return this feature to a state of utility, following guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for preservation of existing components of the feature.[39]
- Rehabilitate earthen structures including the prism and the basin north of the Canal Exploration Center. Prioritize stabilization of the berm over river meandering. Refer to Overall Study Area Buildings and Structures Guidelines.
- Rehabilitate Alexander's (Wilson's) Mill structures to support long-term maintenance and use of the mill complex. Continue to use the mill as a leased retail space consistent with the historic character of the study area.

Circulation

- Represent the historic character of the towpath. Refer to Overall Study Area Circulation and Access Guidelines.

Natural Systems, Climate Change, Topography, and Vegetation

- Rehabilitate the character of the canal corridor to represent vegetation and hydrologic patterns present during the period of significance. Refer to Overall Study Area Natural Systems, Climate Change, and Topography Guidelines and Overall Study Area Vegetation Guidelines.
- Regularly dredge the prism throughout Segment 7 as needed where siltation impacts the historic character of the cultural landscape, retaining limited wetland vegetation along the prism edges.

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[37] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 542.

[38] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 543.

[39] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 543-546.

Small-Scale Features

- Continue to maintain existing site furnishings, signs, and guardrails in good condition. When features require replacement, use a palette consistent with the historic character of the canal corridor. Refer to Overall Study Area Small-Scale Features Treatment Types.

Visitor Experience

- Protect significant views along the entire segment.
- Rehabilitate the view between the Towpath Trail and Alexander's (Wilson's) Mill by selectively removing or pruning woody vegetation to improve visual connections between the trail and the mill complex.
- Enhance views between Canal Road and the canal corridor by managing vegetation on the east side of the prism to ensure visual connections with the road while screening substantial modern development.
- Continue to maintain view from Towpath Trail to Gleason Farm.
- Consider interpreting the relationship of the corridor to Canal Road.
- Consider interpreting businesses associated with the canal at Lock 39.

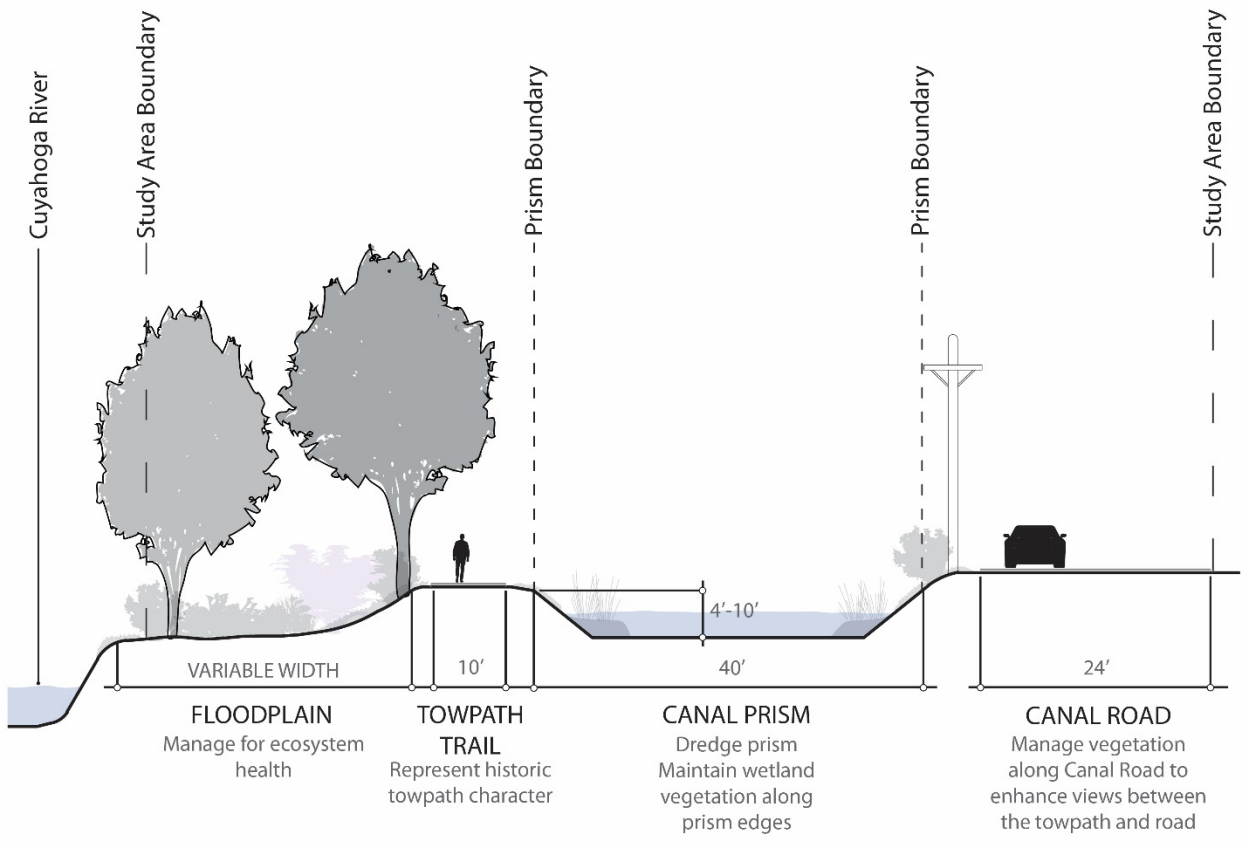


Figure 4-65: Proposed typical treatment in Segment 7.

Detail Area Treatment Recommendations

Canal Exploration Center Detail Area

Recommendations for the Canal Exploration Center Detail Area landscape increase capacity for outdoor programming, address pedestrian and bicycle traffic congestion at Lock 38, improve universal access throughout the detail area, and identify strategies to expand interpretation of the canal and its relationship with the river.

Contributing features and aspects including the Canal Exploration Center building, route of the Towpath Trail, Lock 38 and Spillway, and views to Canal Road, the river, and compatible land uses are preserved or restored. In addition, the treatment reestablishes or represents missing spatial patterns and features to enhance the character of the detail area and help visitors to understand its historic function. The concept plan recommends planting trees along the west side of the Towpath Trail and adding on-grade interpretive features to identify the locations of outbuildings present near the Canal Exploration Center building during the period of significance. To rehabilitate views between the Canal Exploration Center, spillway, and Canal Road, the treatment recommends burying overhead lines and rehabilitating historic vegetation patterns. Where new features are needed to support visitor use, a simple, utilitarian palette is proposed to be compatible with the vernacular landscape and to draw from the existing successful visual language of boxes and barrels.

A new bicycle route is proposed around the west side of the Canal Exploration Center building to reduce conflicts between through traffic and visitors experiencing interpretive elements or lock demonstrations between the building and Lock 38. The Towpath Trail is extended along the west side of the canal prism under Hillside Road to provide a secondary route for pedestrians continuing north from the detail area; this trail reconnects with traffic from the bypass route north of Hillside Road. An improved route is also provided on the east side of the lock so that visitors can explore the resources. The circulation concept is intended to provide universally accessible routes to all site features utilizing the existing topography to the greatest extent possible. The proposed circulation scheme is illustrated on Figure 4-66.

Program spaces added throughout the detail area support a variety of users, group sizes, and interpretive discussions. Shade trees and universally accessible picnic tables enhance the existing picnic area south of the Canal Exploration Center, and the treatment concept recommends an additional picnic area with a small pavilion west of the parking area, near new trails along the river's edge. Immediately west of the Canal Exploration Center, a new space incorporating the detail area's graphic identity supports outdoor gathering as well as educational programming utilizing the natural topographic features as an informal amphitheater.

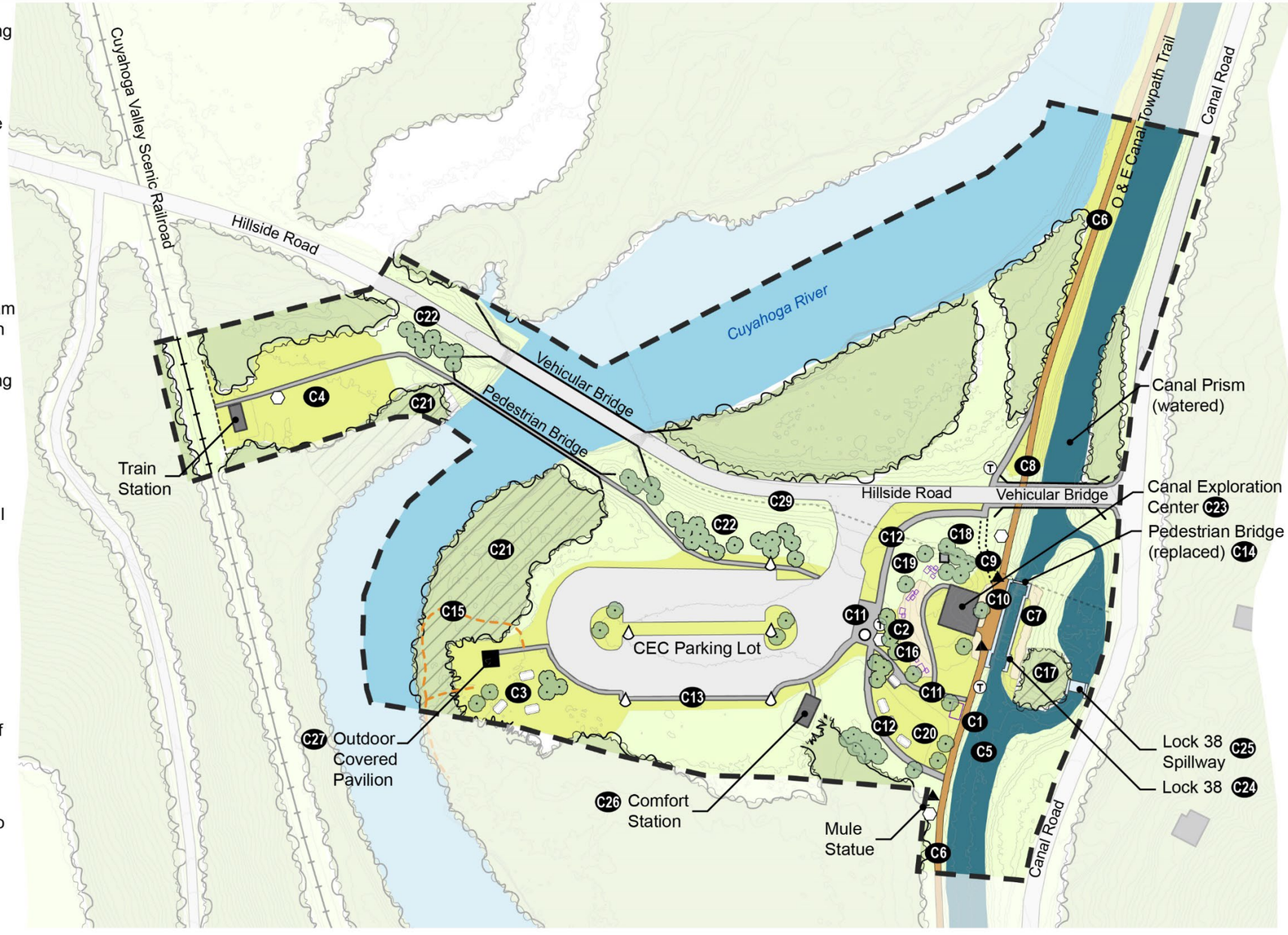
Treatment for the Canal Exploration Center Detail Area is illustrated on drawing RT-6 (see page 4.83). Treatment tasks for the Canal Exploration Center Detail Area are designated with "C." Recommendations are conceptual, and the treatments require development to refine the appropriate design details.



Figure 4-66: Proposed bicycle trail bypass route and Towpath Trail reconfiguration at Canal Exploration Center.

Treatment Tasks

- C1 Consider interpreting a missing historic structure with on-grade features
- C2 Add program space and interpretive features consistent with existing boxes and barrels
- C3 Add picnic and outdoor program space
- C4 Add outdoor program space near the train station
- C5 Consider interpreting canal boat use and/or scale within detail area[4]
- C6 Replace Towpath Trail surface with chip seal where trail follows historic alignment
- C7 Add a chip seal walkway with an irregular edge
- C8 Reroute Towpath Trail under Hillside Road bridge
- C9 Remote segment of Towpath Trail and maintain as park access route
- C10 Replace walkway to increase space for lock demonstration
- C11 Clarify pedestrian circulation between parking area and CEC; remove existing walkways and stairs, and add new walkways and dropoff
- C12 Add concrete bike bypass route
- C13 Add concrete walkway
- C14 Maintain the existing pedestrian bridge
- C15 Formalize social trials
- C16 Add chip seal paved program space
- C17 Remove woody understory vegetation and retain low native herbaceous vegetation and canopy trees
- C18 Add informal groupings of shade trees to screen HVAC unit
- C19 Add mid-height native grasses/herbaceous vegetation
- C20 Add irregularly spaces shade trees
- C21 Replace invasive understory vegetation with low height native vegetation to increase visibility
- C22 Add informal groupings of shade trees
- C23 Preserve the CEC building and continue park use
- C24 Preserve Lock 38 and maintain for lock demonstrations
- C25 Restore spillway
- C26 Maintain Comfort Station
- C27 Consider adding outdoor covered pavilion
- C28 Continue to utilize existing small-scale features; when new features are needed, utilize a palette that draws from existing graphic identity (see legend)
- C29 Coordinate with local utilities to bury overhead lines



Legend

- Detail Area Boundary
- Railroad
- Formalize Trail
- Road/Parking lot
- Resurface Towpath Trail
- Add/Maintain Sidewalk
- Preserve/Maintain Building
- Canal Prism (Watered)
- Add/Maintain Mown Lawn
- Add/Maintain Shrubs and Grasses
- Maintain Forest
- Remove Understory
- River/Waterbody
- Maintain Fence
- 2 Foot Contours
- Maintain Bridge
- Maintain/Add Tree
- Bury Utility Line
- Maintain Trail Sign C28
- Maintain Canal Exploration Center Sign C28
- Maintain Kiosk C28
- Maintain Wayside C28
- Maintain Light Post C28
- Maintain HVAC Unit C28
- Maintain Picnic Bench C28

Notes and Sources

1. Cuyahoga Valley National Park GIS: water bodies, vegetation, buildings, and contours.
2. USGS GIS: roads and railroads.
3. Quinn Evans and SKDG field investigations, April 2021.
4. Select tasks are not illustrated on this drawing. See Chapter 4 narrative for options.

0 75 150 300 Feet

1 inch = 150 feet

N

Cuyahoga Valley National Park
Ohio & Erie Canal Cultural Landscape Report

Canal Exploration Center Detail Area Recommended Treatment

July 2022

NPS No. CUVA 644 177149 **RT-6**

Canal Exploration Center Detail Area Site Program

C1. Consider interpreting a missing historic structure south of the Canal Exploration Center building using an on-grade feature. Conduct archeological investigations and historical research to confirm the feature's location, age, and significance before adding an interpretive element.

C2. Add program space and interpretive features consistent with the detail area's existing boxes-and-barrels graphic identity on the west side of the Canal Exploration Center building. Consider designing the program space as an informal amphitheater. Refer to Task C11 and Task C16.

C3. Add picnic and outdoor program space southwest of the existing parking area. Link the new program space to trails along the river. Refer to Task C13, Task C15, and Task C27.

C4. Add outdoor program space (meadow) east of the railroad station by expanding mown lawn areas adjacent to the station. Consider expanding programming to the train station structure or adding a stationary historic train car near the depot as indoor program space.[40]

C5. Consider interpreting canal boat use and/or scale within the detail area.[41] Potential options include:
   a. Deck representing the scale of a typical canal boat.
   b. Seasonal event with boat demonstration through the lock.

Canal Exploration Center Detail Area Circulation

C6. Replace the existing Towpath Trail surface with chip seal where the trail follows the historic alignment of the towpath. Refer to Overall Study Area Circulation Treatment Types.

C7. Add a walkway on the east side of Lock 38.
   a. Add a 5'-wide chip seal walkway with an irregular edge. Refer to Overall Study Area Circulation Treatment Types.
   b. Establish 6"–18" tall native grasses between the new walkway and the lock.

C8. Reroute the Towpath Trail under the Hillside Road bridge so that the trail follows the historic alignment of the towpath along the canal prism.
   a. Add a new portion of the Towpath Trail connecting existing segments of the trail under Hillside Road.
   b. Before trail replacement, engage an engineer to confirm that height requirements under the bridge can be met during high water events in the canal prism and design a retaining wall, if needed, along the east side of the new trail.
   c. Replace the Towpath Trail surface with chip seal as indicated in Task C6. Refer to Overall Study Area Circulation Treatment Types.

C9. Remove the segment of Towpath Trail extending south from Hillside Road to Lock 38. Maintain a stabilized grass or gravel surface along this route for park vehicle and emergency access to the Towpath Trail.

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[40] Note that these options are not illustrated on RT-6.

[41] Note that these options are not illustrated on RT-6.

C10. Replace the walkway along the east side of the Canal Exploration Center to increase space for lock demonstrations.
   a. Install a 14'-wide chip seal surface between the Towpath Trail and the Canal Exploration Center. Design the surface to comply with ABAAS with an irregular edge that evokes the historic character of the detail area.
   b. Replace the Towpath Trail surface as indicated in Task C6.

C11. Clarify pedestrian circulation between the parking area and Canal Exploration Center building.
   a. Remove existing walkways and stairs between the parking area and Canal Exploration Center building.
   b. Add a new 53'-by-20' concrete-paved dropoff area on the east end of the parking area.
   c. Add a new 5'-wide concrete walkway between the dropoff area and the Towpath Trail south of the Canal Exploration Center building. Design the surface to comply with ABAAS and incorporate a universally accessible picnic area into the hardscape design.
   d. Add a new 5'-wide concrete walkway to the lower level of the Canal Exploration Center. Design the surface to comply with ABAAS.

C12. Add an 8'-wide concrete bypass route for bicycle traffic around the west side of the Canal Exploration Center.
   a. Route the new circulation feature south of the picnic area, along the east side of the new dropoff area, and along the south side of Hillside Road.
   b. Design the surface to comply with ABAAS. Minor regrading may be required along the south side of Hillside Road.

C13. Add a 5'-wide concrete walkway along the south side of the parking area between the proposed dropoff area (Task C11) and proposed covered pavilion (Task C27).

C14. Maintain the existing pedestrian bridge. When the feature requires replacement, design the new bridge to be compatible with the character of the cultural landscape; refer to Overall Small Scale Features Guidelines. Consider options to provide a universally accessible route that does not impact the structure.

C15. Formalize social trails along the riverbank in locations that minimize erosion and provide access for fishing. Establish bare earth or mown grass trails.

C16. Add a chip seal-paved program area on the west side of the walkway to the lower level of the Canal Exploration Center. Design the surface to comply with ABAAS and provide an irregular edge.

Canal Exploration Center Detail Area Vegetation

C17. Remove woody understory vegetation between the lock and spillway. Retain canopy trees and low native herbaceous vegetation.

C18. Add shade trees in informal groupings north of the Canal Exploration Center to screen views of the building's HVAC unit.

C19. Add mid-height native grasses and herbaceous vegetation along the north and west sides of the Canal Exploration Center building.

C20. Add irregularly spaced shade trees along the Towpath Trail and open lawn areas south and west of the Canal Exploration Center building.

C21. Replace invasive understory vegetation with low-height native vegetation along both sides of the riverbank to increase visibility of the train station and improve ecological community health.

C22. Add shade trees in informal groupings along the pedestrian route between the train station and parking area.

Canal Exploration Center Detail Area Buildings and Structures

C23. Preserve contributing aspects and features of the Canal Exploration Center building and continue to use the building for visitor services, exhibits, and park administration.

C24. Preserve Lock 38 and maintain in good condition for lock demonstrations. Maintain gates to protect the historic structure.
   a. During low water, maintain the north (Cleveland) gate open and the south (Akron) gate closed.
   b. During high water, maintain both gates open.

C25. Restore the spillway.
   a. Refer to Overall Study Area Buildings and Structures Guidelines and guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for immediate and long-term preservation of concrete structures.[42] Engage an architectural conservator and structural engineer to repair surface concrete and masonry.
   b. Conduct archeological investigations before stabilizing the historic canal structures.

C26. Maintain the comfort station.

C27. Consider adding a 20'-by-20' outdoor covered pavilion southwest of the parking area. Design the pavilion to be a simple wood and stone structure compatible with the vernacular character of the landscape.

Canal Exploration Center Detail Area Small-Scale Features

C28. Continue to utilize existing small-scale features and furnishings including the mule sculpture and boxes and barrels signage to support the detail area's graphic identity.
   a. Adjust the location of existing scene-setting features, including the kiosk and barrel elements, in response to the location of circulation features. Surface mount all small-scale

[42] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 535-541.

features and furnishings in regularly flooded locations (for example, along the berm south of the Canal Exploration Center building).

b. When new features are needed to support proposed uses within the study area, utilize a palette that draws from the detail area's existing graphic identity as well as simple, vernacular features as described in the Overall Study Area Small-Scale Features Guidelines.

C29. Coordinate with local utilities to bury the overhead lines that impact the view between the Canal Exploration Center building and Canal Road.

Boston Detail Area

Treatment for the Boston Detail Area rehabilitates the canal-era cultural landscape while illuminating the many layers of history and periods of development within the village, including historic features and aspects outside of the period of significance for the canal corridor. Circulation is clarified and congestion reduced through new routes that evoke historic circulation patterns and expand interpretation opportunities (see Figure 4-67).

Central to the Boston Detail Area treatment is reestablishing visual and spatial connections between Lock 32 and the village. This is accomplished by removing invasive vegetation that blocks views between the lock and Boston Mills Road and adding interpretive features to support enhanced understanding of the boat yard and dry dock that occupied this central location within the village. Stormwater diverted into the canal prism from a nearby drainage channel supports the historic character of the detail area and improves resilience to flooding.

The treatment plan preserves contributing features and aspects, including buildings that contribute to the Boston Mills Historic District company town era, which extends beyond the period of significance for the canal corridor. Lock 32 and its spillway are restored to convey water diverted into the canal prism.

In the long term, the historic routes of Cuyahoga Avenue and South Street are reestablished to simplify circulation southwest of the Boston Store and integrate the new pedestrian bridge connecting to the Boston Mills Visitor Center into the detail area. The recommended circulation treatment retains limited mobility parking near Boston Mills Road, adds universally accessible pedestrian connections to the Boston Store and picnic areas along the Cuyahoga River, and provides opportunities to interpret canal-era commerce. In the short term, the existing loop road will be maintained to provide a turnaround for the river access point and large delivery vehicles.[43]

Parking at Boston will be addressed by the concurrent Community Access Plan (CAP) project. A potential location for permanent parking is identified for further evaluation by the CAP.

Treatment for the Boston Detail Area is illustrated on drawing RT-7 (see page 4.91). Treatment tasks for the Boston Detail Area are designated with "B." Recommendations are conceptual, and the treatments require development to refine the appropriate design details.

[43] Note that only the long-term condition is illustrated on RT-7. The existing route is on drawing EC-7. An alternative that maintains the existing loop road was explored as part of the treatment workshop; refer to Appendix B.

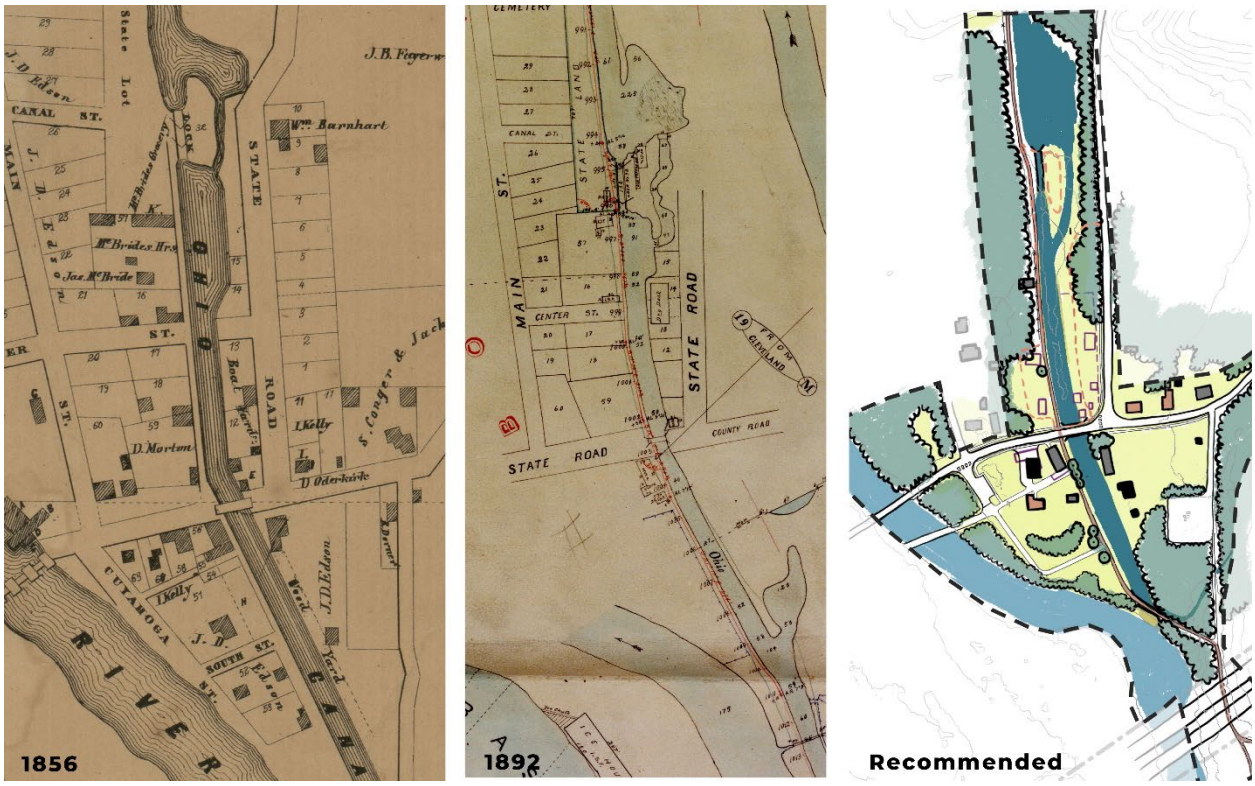


Figure 4-67: Comparison of 1856, 1892, and recommended circulation and interpretive features within the Boston Detail Area.

Boston Detail Area Site Program

B1. Interpret missing historic structures, boat yard, and dry dock north of Boston Mills Road using on-grade features. Refer to Overall Study Area Visitor Experience Guidelines and the Boston Detail Area Landscape Analysis (see Chapter 3, page 3.194).

B2. Interpret the historic warehouse formerly attached to the south side of the Boston Store using an on-grade feature. Refer to Overall Study Area Visitor Experience Guidelines.

B3. Consider interpreting the commercial hotel on the M.D. Garage site using an on-grade feature or wayside. Refer to Overall Study Area Visitor Experience Guidelines.

Boston Detail Area Circulation

B4. In the long term, remove the existing limited mobility parking and add new limited mobility parking along the historic route of Cuyahoga Street.
   a. In the short term, retain the existing loop road and limited mobility parking to provide a turnaround for the river access point and large delivery vehicles.
   b. Remove the existing parking area southwest of the Boston Store.
   c. Add seven asphalt-paved limited mobility parking spaces along the east side of Cuyahoga Street. Retain the portion of Cuyahoga Street that accesses the parking spaces.

B5. In the long term, add an 8'-wide concrete pedestrian walkway between the limited mobility parking and the Towpath Trail following the historic routes of Cuyahoga Street and South Street.
   a. Design the surface to comply with ABAAS.
   b. Engage an archeologist prior to ground disturbance to avoid impacting archeologically sensitive locations south of the Boston Store.



Treatment Tasks

- B1 Interpret missing historic structures, boat yard, and dry dock using on-grade features
- B2 Consider interpreting historic warehouse
- B3 Consider interpreting the Commercial Hotel on the MD Garage site
- B4 Add new limited mobility parking area
- B5 Add walkway between new parking area and Towpath Trail
- B6 Add accessible walkway between Cuyahoga Street and Towpath Trail
- B7 Maintain mown grass trail
- B8 Maintain pedestrian bridge and mown grass trail
- B9 Replace Towpath Trail surface with chip seal
- B10 Add sidewalks compatible with historic character
- B11 Add mown grass trail
- B12 Locate overflow parking as far south as possible and visually screened with vegetation
- B13 Manage vegetation to reestablish views between new picnic area and the river
- B14 Work with community to determine if appropriate to manage vegetation to reestablish view
- B15 Manage vegetation to reestablish views between Lock 32 and Boston Store
- B16 Maintain lawn
- B17 Stabilize and preserve Lock 32, spillway, and waste weir
- B18 Consider diverting floodwater and/or stormwater runoff into canal prism
- B19 Consider representing missing bridge
- B20 Preserve buildings that contribute to canal corridor and Boston Mills Historic District.
- B21 Maintain MD Garage for park use
- B22 Maintain fence between private properties, cemetery, and Towpath Trail.
- B23 When small scale features require replacement, install features that are compatible with historic character[5]

Notes and Sources

1. Cuyahoga Valley National Park GIS: water bodies, vegetation, buildings, and contours.
2. USGS GIS: roads and railroads
3. Quinn Evans and SKDG field investigations, April 2021
4. National Register of Historic Places, Boston Mills Historic District, Boston Township, Summit County, Ohio, National Register #92001490
5. Recommendation not illustrated on this drawing.

0 125 250 500 Feet

1 inch = 250 feet

N

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Legend

- Detail Area Boundary
- NPS Boundary
- Railroad
- Add mown grass trail
- Road/Parking Lot
- Resurface Towpath Trail
- Add/Maintain Sidewalk
- Interstate
- B20 Preserve Contributing Building (canal era)
- B20 Preserve Contributing Building (Boston Mills HD)
- Maintain Non-contributing Building
- Interpret Missing Historic Features
- Canal Prism (Watered)
- Add/Maintain Mown Lawn
- Maintain Shrubs/Grasses
- Add/Maintain Forest
- River/Waterbody
- Maintain Fences
- 2 Foot Contours
- Add/Maintain Bridge
- Maintain Culvert
- Trail Sign B23
- Wayside B23
- Add/Maintain Tree

Boston Detail Area Recommended Treatment

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B6. In the long term, add universally accessible walkways between Cuyahoga Street and the Towpath Trail along the historic right-of-way immediately south of the Boston Store. Incorporate the proposed pedestrian bridge into the circulation system.
   a. Remove existing non-contributing walkways between the comfort station, Boston Store, and Towpath Trail.
   b. Add a concrete walkway along the historic route of the alley between Cuyahoga Street and the Boston Store. Include a connection to the Towpath Trail and proposed pedestrian bridge. Design the surface to comply with ABAAS.
   c. Replace the driveway at the M.D. Garage with a new asphalt surface to provide vehicular access and a universally accessible route between the M.D. Garage and new walkway in the historic location of the alley.
   d. Add a 5'-wide concrete walkway connecting between the comfort station and new walkway. Design the surface to comply with ABAAS.

B7. Maintain the mown grass trail on the west side of the canal prism north of Boston Mills Road to access proposed interpretive features.

B8. Maintain the pedestrian bridge across Lock 32 and the mown grass trail between the lock and waste weir. When the bridge requires replacement, construct a feature compatible with the character of the historic landscape. Refer to Overall Study Area Visitor Experience Guidelines.

B9. Replace the existing Towpath Trail surface with chip seal. Refer to Overall Study Area Circulation Treatment Guidelines.

B10. Add sidewalks compatible with the historic character of the landscape along Boston Mills Road and Stanford Road. Refer to Figure 4-68 and Figure 4-69 and the following character considerations:
   a. Incorporate a narrow vegetated buffer between the road and sidewalk.
   b. Utilize a material that evokes the character of the village's historic dirt walkways, such as chip seal or limestone fines. Install and maintain to provide an accessible surface with irregular edges.

B11. Add a new mown grass trail on the east side of the canal prism connecting the waste weir, proposed interpretive features north of Boston Mills Road, and proposed sidewalk along Stanford Road.

B12. Continue working with the concurrent CAP project to identify a location for overflow parking that serves the village of Boston.
   a. If overflow parking is retained within the detail area boundary, locate it as far south as possible on the east side of the canal prism.
   b. Visually screen with tree and shrub plantings.



Figure 4-68: Sidewalk character within village of Boston, ca. 1905–1913 (Historic Landscape Analysis and Design Recommendations for Boston, Ohio, 35).

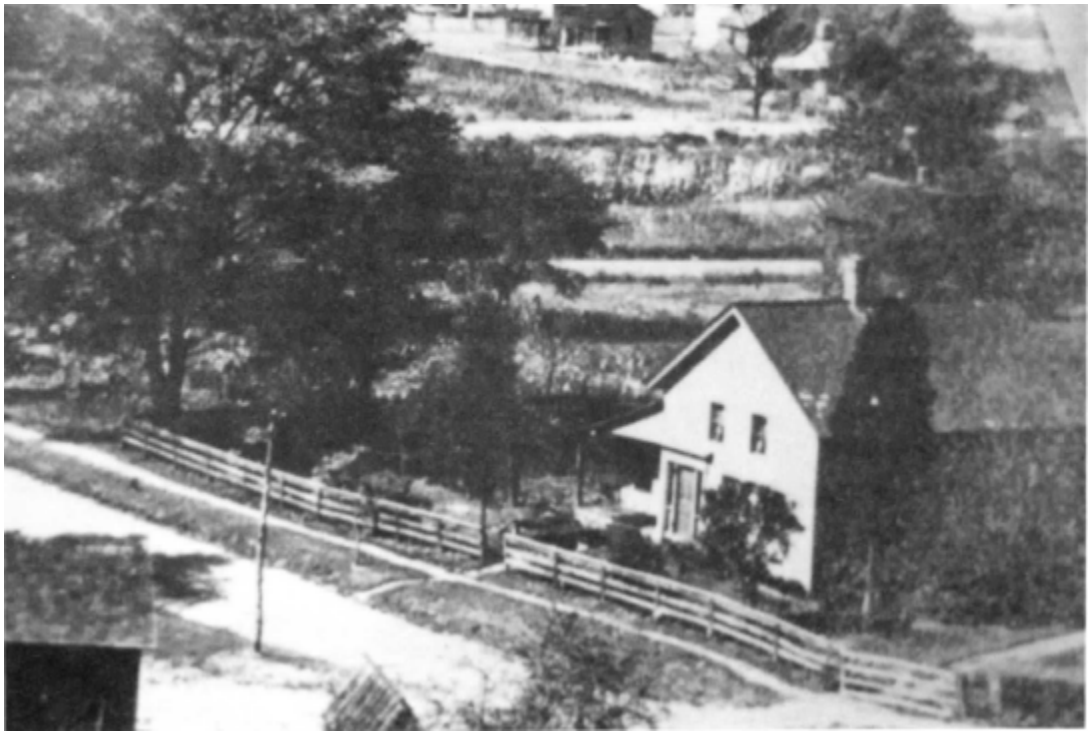


Figure 4-69: Sidewalk at Conger-Jackson house, ca. 1905–1913 (Historic Landscape Analysis and Design Recommendations for Boston, Ohio, 36)

Boston Detail Area Vegetation and Views

B13. Manage vegetation to reestablish select views between the picnic area south of the Boston Store and the river. Selectively remove or prune woody understory vegetation (less than 6" diameter) to provide views from the picnic area to the river. Retain vegetation along the riverbank for stabilization.

B14. Work with the community to determine if it is appropriate to manage vegetation to reestablish a view between Towpath Trail and cemetery.

B15. Manage vegetation to reestablish views between Lock 32 and the Boston Store. Remove woody understory vegetation (less than 6" diameter) within the canal prism and between the canal prism and Sanford Road. Retain large canopy trees for shade.

B16. Maintain lawn south of Boston Mills Road and east of the canal prism to provide open program space.

Boston Detail Area Buildings and Structures

B17. Stabilize and preserve Lock 32, the spillway, and the waste weir.
   a. Refer to Overall Study Area Buildings and Structures Guidelines and guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for immediate and long-term preservation of concrete structures.[44] Engage an architectural conservator and structural engineer to repair surface concrete and masonry.
   b. Conduct archeological investigations before stabilizing the historic canal structures.

B18. Consider diverting stormwater runoff into the canal prism to support climate resilience in the detail area. Rather than maintaining a permanent water level, design this section of the canal prism to function as a bioswale or rain garden. Before undertaking work related to the prism, conduct a drainage study to design the bioswale or raingarden and ensure that retained water would not impact historic residences adjacent to the prism.
   - Regrade the prism to remove sediment deposits and ensure that the prism drains north toward Lock 32. Regrading is primarily needed south of Boston Mills Road; additional culverts may also be required under the road to increase connectivity to the north.
   - Divert drainage from the east side of the detail area into the prism rather than the river. Remove the existing 36" culvert at the south end of the detail area and construct a berm between the prism and river to retain water within the prism.[45]
   - Continue to manage the prism for visibility by selectively remove vegetation to improve visibility of canal prism on the north side of the river. Maintain large trees (greater than 6" diameter) within and along the edges of the prism.

B19. Consider representing the missing bridge over the canal prism at Boston Mills Road. Refer to Overall Study Area Visitor Experience Guidelines.

B20. Preserve buildings that contribute to the canal corridor and Boston Mills Historic District. Where possible, rehabilitate existing contributing buildings to accommodate new uses rather than constructing new buildings. Contributing buildings within the detail area include:
   a. 5841 Main Street (adjacent)
   b. 1571 Boston Mills Road (R.E. Wise House)

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[44] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 535-541.
[45] This will increase the area that drains into the prism from approximately 20 acres to 168 acres.

c. 1565 Boston Mills Road (Square Deal Food Store)
d. 1558 Boston Mills Road (Dzerzyski House—company town era, now used as comfort station)
e. Boston Land and Manufacturing Store
f. Boston Land and Manufacturing Store Barn
g. 1538 Boston Mills Road (Woodrow O. and Helen R. Johnston House)
h. 1509 Boston Mills Road (Conger-Jackson House)
i. 5819 Stanford Road (S.P. Conger House—company town era)
j. 5795 Stanford Road (Savacoal House—company town era)
k. 5795 Stanford Road (Savacoal Barn—company town era)

B21. Maintain the M.D. Garage and Dzerzyski House (comfort station) for park use.

Boston Detail Area Small-Scale Features

B22. Maintain the fence between private properties and cemetery and the Towpath Trail. When the fence requires replacement, install a feature compatible with the historic character of the detail area. Refer to Overall Study Area Visitor Experience Guidelines.

B23. When small-scale features (such as waysides, signs, fences, and furnishings) require replacement, install features that are compatible with the historic character of the landscape. Refer to Overall Study Area Visitor Experience Guidelines.[46]

[46] This recommendation is not illustrated on RT-7.

Peninsula Detail Area

The Peninsula Detail Area treatment plan reduces congestion at Lock 29, improves visibility of canal components, and clarifies historic relationships between the canal, grist mill, railroad, and village of Peninsula.

Conflicts between pedestrian and bicycle traffic are addressed by reducing congestion with the addition of a secondary route following the historic alignment of the aqueduct. The new route also provides opportunities for enhanced interpretation within the lock and improved visitor understanding of the canal components present within this complicated intersection during the period of significance. The proposed circulation scheme at Lock 29 is illustrated on Figure 4-70.

Additional circulation considerations are addressed at the parking area, comfort station, and railroad depot. The walkway on the west side of the railroad tracks is expanded and the barrier between pedestrians and trains is improved. A new sidewalk on the south side of the parking area provides a safe pedestrian route between the Lock 29 trailhead and comfort station. This walkway may also support continued river access if determined appropriate by the concurrent CAP project.[47]

The treatment concept preserves contributing features and aspects including the canal prism, Lock 29, the Peninsula Aqueduct ruin, the mill ruin, and the railroad depot. To improve visibility and understanding of the relationship between canal components, vegetation management highlights the historic location of the prism. A small gathering space added within the prism near the southern end of the detail area interprets missing features and further reduces congestion at Lock 29. Finally, the concept enhances interpretation of the grist mill site by stabilizing the mill ruins and establishing a hiking trail and overlook through the site.

Treatment for the Peninsula Detail Area is illustrated on drawing RT-8 (see page 4.99). Treatment tasks for the Peninsula Detail Area are designated with “P.” Recommendations are conceptual, and the treatments require development to refine the appropriate design details.

[47] Parking within the park will be addressed by the concurrent Community Access Plan (CAP) project. Additional design of the trailhead may be necessary if parking is removed in this location.

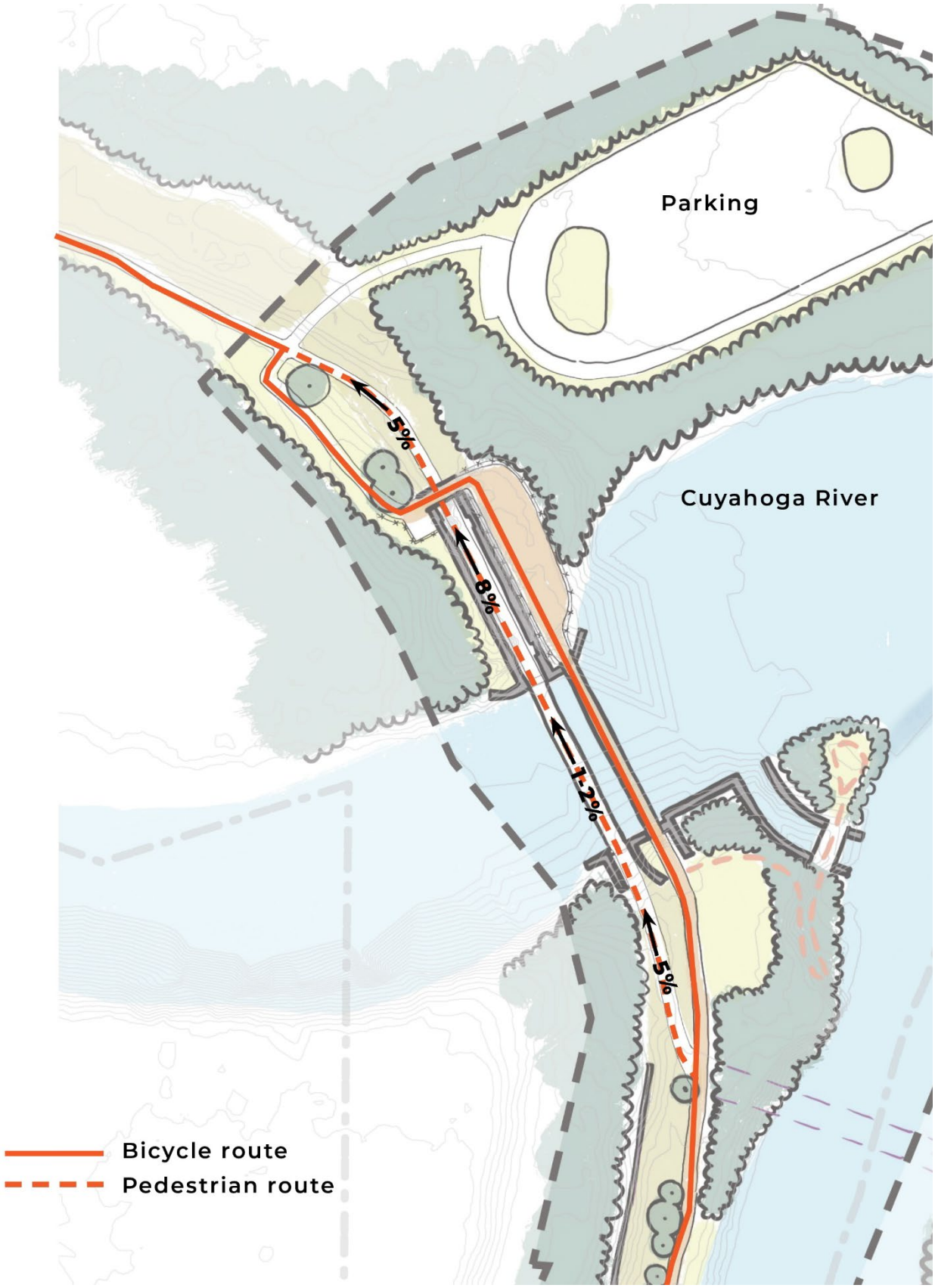


Figure 4-70: Proposed secondary circulation route at Peninsula.



Treatment Tasks

- P1 Reestablish historic circulation route to separate bicycle and pedestrian traffic
- P2 Conduct a condition assessment of the Mill ruins site to identify the feasibility of providing visitor access
- P3 Modify vegetation and/or grade to visualize the canal prism
- P4 Maintain existing gathering space
- P5 Replace Towpath Trail surface with chip seal
- P6 Relocate Lock 29 trailhead
- P7 Add new walkway to Towpath Trail
- P8 Continue to maintain existing parking area
- P9 Add new walkway on the south side of the parking area
- P10 Remove stairs
- P11 Widen trail consistent with historic condition and install chip seal surface
- P12 Add ramp through Lock 29 in location of missing aqueduct
- P13 Add bridge in the historic location of the aqueduct
- P14 Add on-grade route between new bridge and Towpath Trail
- P15 Add on-grade route between new ramp and Towpath Trail
- P16 Continue to maintain existing pedestrian bridge over Lock 29
- P17 Repave wayside bump-out in chip seal
- P18 Reconfigure Towpath Trail intersection
- P19 Replace or widen sidewalk
- P20 Add speed bumps and signs to slow bicycles
- P21 Selectively remove vegetation to improve visibility
- P22 Add woodland to visually delineate historic location of prism
- P23 Retain woodland to obscure views of adjacent development
- P24 Consider adding low herbaceous vegetation in location of prism
- P25 Maintain comfort station
- P26 Maintain railroad station
- P27 Preserve Lock and aqueduct abutments
- P28 Consider adding low stone retaining wall to delineate historic location of prism and create level gathering space
- P29 Consider stabilizing east side of river with soldier pile retaining wall compatible with historic character
- P30 Work with Cuyahoga Scenic Railroad to add fence or low stone/concrete barrier
- P31 Consider adding interpretive materials addressing the missing iron bridge

Notes and Sources

1. Cuyahoga Valley National Park GIS: water bodies, vegetation, buildings, and contours.
2. USGS GIS: roads and railroads
3. Quinn Evans and SKDG field investigations, April 2021

Legend

- Detail Area Boundary
- NPS Boundary
- Railroad
- Consider Adding Traill
- Road/Parking Lot
- Widen/Maintain Limestone Fines Path
- Resurface Towpath Trail
- Maintain Boardwalk
- Maintain Gravel
- Add Sidewalk
- Maintain Buildings
- Canal Prism
- Stabilize/Preserve Canal Features
- Add retaining wall
- Add/Maintain Mown Lawn
- Maintain Woodland
- Add Woodland
- Wetland
- River/Waterbody
- Maintain Fence
- Add Fence/Barrier P29
- 2 Foot Contours
- Add/Maintain Bridge
- Interpret Missing Bridge
- Maintain Culvert
- Maintain Tree
- Maintain Kiosk
- Maintain Wayside
- Maintain Light post
- Maintain Bench
- Add speed bumps P20

0 50 100 150 Feet

1 inch = 100 feet

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Peninsula Detail Area Recommended Treatment

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Peninsula Detail Area Site Program

P1. Reestablish a circulation route in the historic location of the aqueduct to provide an additional route through the detail area. Use the new route to separate pedestrian and bicycle traffic. Refer to Task P11 through Task P15.

P2. Conduct a condition assessment of the mill ruins site to determine what treatments are necessary to preserve the historic property and identify the feasibility of adding an interpretive trail from the Towpath Trail to the mill ruins.
   a. Evaluate the ruins and topography to determine if visitor access can be provided safely.
   b. Consider adding a trail and overlook to interpret the mill ruins, utilizing the route of the concrete bridge.

P3. Modify the vegetation and/or grade to visualize the canal prism south of the river. Incorporate a small seating area into the design of the feature to provide a stopping point outside of the high-congestion area near the Lock. Refer to Task P22, Task P23, and Task P28. Representation options include:
   a. Selectively remove woody understory vegetation and maintain large trees (greater than 6" diameter) within and along the edges of the prism location. Add an on-grade delineation of the prism such as a linear stone feature or planting pattern to improve visitor understanding of its historic location.
   b. Grade the historic location of the prism so that it is at or below the elevation of the adjacent Towpath Trail. Add a stone or concrete retaining wall on the west side of the prism to navigate the grade change between the prism and the slope. Establish low native herbaceous vegetation within the location of the prism.

P4. Continue to maintain the mown gathering space and associated benches along the east side of the Towpath Trail on the south side of the river.

Peninsula Detail Area Circulation

P5. Replace the existing Towpath Trail surface north and south of Lock 29 with chip seal.
   a. Refer to Overall Study Area Circulation Guidelines for surface treatment recommendations.
   b. This walkway will continue to serve as the universally accessible route to the upper elevation of the Lock. Work with the concurrent CAP project to add signage.

P6. Relocate the Lock 29 trailhead to the northwest corner of the parking area.
   a. Remove the existing asphalt trailhead pavement.
   b. Add a 40'-by-15' chip seal-paved trailhead at the northwest corner of the parking area. Use a contrasting color to indicate that this pavement is not in the historic location of the Towpath Trail.
   c. Move the existing kiosk to the new trailhead location.

P7. Add a new walkway from the relocated trailhead to the Towpath Trail, north of the existing walkway location.
   a. Remove the existing walkway between the trailhead and Towpath Trail.
   b. Add an 8'-wide chip seal-paved walkway between the new trailhead and the Towpath Trail. Use a contrasting color to indicate that this walkway does not follow the historic route of the Towpath Trail.
   c. Incorporate a low-profile box culvert where the new walkway crosses the prism.

P8. If determined appropriate by the concurrent CAP project, continue to maintain the parking area in its existing location.

P9. Add a walkway on the south side of the existing parking area.
   a. Design the concrete walkway to be 8' wide and meet ABAAS.
   b. If determined appropriate by the concurrent CAP project, utilize the new walkway to provide river access (kayaks, fishing) from the Lock 29 parking area. Add accessible benches along the walkway for river viewing.

P10. Remove the stairs between the trailhead and upper portion of Lock 29 and revegetate the slope with riparian species consistent with the surrounding vegetation community.

P11. Widen the trail adjacent to Lock 29 consistent with its historic condition.
   a. Remove existing asphalt and limestone fines pavement between the two pedestrian bridges.
   b. Install a trail surface consistent with the Towpath Trail within the historic extent of the paved area adjacent to the lock.

P12. Add a ramp through the center of Lock 29 connecting to the bridge in the location of the missing aqueduct.
   a. Meet the elevation of the bottom of the historic aqueduct at the south end of Lock 29.
   b. Protect the existing materials of Lock 29. Do not anchor ramp components into the historic fabric.
   c. Use simple, low-profile materials for the ramp structure, for example Figure 4-71 and Figure 4-72.
   d. Design the ramp to meet ABAAS.
   e. Design the ramp to accommodate the vernal pool at the south end of Lock 29 and flooding within the lock during severe storms.

P13. Construct a pedestrian bridge in the historic location of the aqueduct, west of the existing pedestrian bridge.
   a. Meet the elevation of the bottom of the historic aqueduct on both the north and south sides of the river.
   b. Preserve the existing materials of the aqueduct ruins following the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.
   c. Use simple, low-profile materials consistent with the adjoining ramp through Lock 29.
   d. Consider combining the new circulation route with replacement of the existing bridge so that both routes are incorporated into one bridge consistent with the historic condition. The existing bridge is degrading, and portions of the structure will require replacement within the next 10 years. A combined structure is consistent with the historic aqueduct, which incorporated the towpath along its east side. Refer to Figure 4-73.

P14. Add an 8'-wide on-grade chip seal route connecting between the new bridge and Towpath Trail south of the river. Use a contrasting color to indicate that this walkway does not follow the historic route of the Towpath Trail.

P15. Add a walkway connecting between the new ramp and the Towpath Trail north of Lock 29.
   a. Remove existing asphalt pavement between the new ramp and the Towpath Trail north of Lock 29.
   b. Construct an 8'-wide on-grade chip seal route. Use a contrasting color to indicate that this walkway does not follow the historic route of the Towpath Trail.

P16. Continue to maintain the existing pedestrian bridge over Lock 29.

P17. Retain the existing wayside bump-out on the west side of Lock 29. Repave in chip seal with a contrasting color to delineate that it was not part of the historic circulation system at the lock.

P18. Reconfigure the north end of the walkway over Lock 29 to meet the Towpath Trail at its intersection with the new trailhead walkway.
   a. Construct a new 8'-wide chip seal connector walkway with a contrasting color to delineate that it was not part of the historic circulation system at the lock.
   b. Remove existing walkway between the new connector walkway and the Towpath Trail.

P19. Replace or widen the sidewalk between the east bank of the river and railroad to provide a route at least 8' wide.

P20. Add traffic-calming measures to slow bicycles at the north and south ends of the detail area, for example:
   a. Speed humps
   b. Signs alerting trail users to the upcoming trail curve
   c. Change in pavement color or texture



Figure 4-71: Metal mesh walkway provides visual transparency to surrounding landscape features (Parc Jean Drapeau).



Figure 4-72: Simple bridge with wood railing (Pocono Biking).



Figure 4-73: Character of historic Peninsula Aqueduct and towpath as combined structure, 1898 (Louis Baus Canal Photograph Collection, OEC_119, The University of Akron, University Libraries Archival Services).

Peninsula Detail Area Vegetation

P21. Selectively remove woody understory vegetation to improve visibility of canal prism on the north side of the river. Maintain large trees (greater than 6" diameter) within and along the edges of the prism.

P22. Add riparian forest vegetation between the parking area and prism to visually delineate the historic location of the prism.

P23. Retain woodland vegetation on the slope west of the Towpath Trail and south of the river to obscure views of adjacent development.

P24. Consider adding low herbaceous vegetation in the location of the prism south of the river.
   a. Refer to Task P28 for regrading of the prism to establish a small gathering space. Establish low native herbaceous vegetation within the historic location of the prism and maintain through annual mowing or periodic prescribed burns.
   b. Regularly mow vegetation within the gathering space.
   c. Retain select large trees along the Towpath Trail south of the river to provide shade.

Peninsula Detail Area Buildings and Structures

P25. Maintain the existing comfort station in good condition.

P26. Work with the building owner to maintain the existing railroad station in good condition.

P27. Stabilize and preserve Lock 29 and the Peninsula Aqueduct abutments.
   a. Refer to Overall Study Area Buildings and Structures Guidelines and guidance in the 2019 *Ohio & Erie Canal History and Historic Structure Assessment* for immediate and long-term preservation of concrete structures.[48] Engage an architectural conservator and structural engineer to repair the structure.
   b. Conduct archeological investigations before stabilizing the historic canal structures.

P28. Consider adding a low stone retaining wall on the west side of the prism south of the river to delineate the historic location of the prism and create a level area for a gathering space. Refer to Task P23 and Figure 4-74 and Figure 4-75.

P29. Consider stabilizing the slope on the east side of the river with a soldier pile retaining wall with a form liner pattern compatible with the historic character of stone retaining walls and abutments at the aqueduct and mill. Refer to Figure 4-76 and Figure 4-77.

Peninsula Detail Area Small-Scale Features

P30. Work with the Cuyahoga Valley Scenic Railroad to add a fence or low stone or concrete barrier between the railroad tracks and the pedestrian walkway on the east side of the river. Refer to Figure 4-78 and Figure 4-79.

P31. Consider adding interpretive materials to enhance visitor understanding of the missing iron bridge.

[48] Heberling Associates, *Ohio & Erie Canal History and Historic Structures Assessment*, 535-541.



Figure 4-74: Mown gathering space on east side of Cuyahoga River, Peninsula (QE, 2021).



Figure 4-75: Retaining wall with mown terrace (Gardenista).



Figure 4-76: Cut stone walls at aqueduct abutments (QE, 2021).



Figure 4-77: Cut stone walls at Lock 29, 1898 (Louis Baus Canal Photograph Collection, OEC_118, The University of Akron, University Libraries Archival Services).



Figure 4-78: Wood and chain link fence barrier (Discover Lehigh Valley).



Figure 4- 79: Concrete seat wall (The Art of Concrete).

Recommended Future Research, Studies, and Projects

The following collections may be useful in expanding understanding of historic condition of the canal corridor and surrounding landscape but were beyond the level of detail addressed in this CLR.

- D. Weaver and R. Howe Ohio Canal Collections at Kent State University. This collection may provide additional information on construction of Ohio & Erie Canal water regulating structures.[49]
- US Environmental Protection Agency Documerica Project, on file at the National Archives. This program, sponsored by the Environmental Protection Agency, documented subjects of environmental concern in America during the 1970s. Photographs within the Cuyahoga River Valley may provide insight on condition of the landscape at the time of park development.
- John F. Seiberling Collection, Special Collections, Akron-Summit County Public Library. This collection documents efforts to create and preserve the Cuyahoga Valley National Recreation Area in the 1960s and 1970s.[50]
- Ohio Canal Commission and Ohio Board of Public Works Collections, Ohio History Center. The archive includes many original State of Ohio canal records.

Consider developing interpretive materials addressing the route of the David Hudson Trail and the associated Western Reserve settlement story.

Consider developing interpretive information incorporating stories along the river that are not part of the OEC Canal and previously unrepresented stories.

Consider expanding the NHL nomination to include the entire watered portion of the canal corridor. The current NHL documentation dates to 1983 and provides only limited descriptions of site features and history. The district incorporates the north 4 miles of the canal corridor. The high integrity of the cultural landscape between Lock 36 and 37 warrants consideration of expanding the NHL nomination to include the entire watered portion of the canal corridor.

Undertake an interdisciplinary long-term river management plan focused on the hydrology, erosion, and vegetation associated with the Cuyahoga River in the area. Within that plan, consider if allowing the Cuyahoga River to erode the towpath berm in limited locations along the "unwatered" section of the canal would ultimately be beneficial both to the long-term preservation of the overall canal corridor and to the ecological systems associated with it.

[49] Ohio Canal Collection (D. Weaver, R. Howe), Kent State University, finding aid accessed December 2021, https://www.library.kent.edu/special-collections-and-archives/ohio-canal-collections-d-weaver-r-howe.

[50] John F. Seiberling Collection, Akron-Summit County Public Library, finding aid accessed December 2021, https://www.akronlibrary.org/images/Divisions/SpecCol/images/JohnFSeiberlingCollection.pdf.



05 Implementation Plan



Lock 28, looking north (Carol Poh Miller, Ohio Historic Inventory, 1976).

05 Implementation Plan

This chapter provides guidance for implementing treatment recommendations identified in Chapter 4: Treatment. The implementation phases are organized based on the complexity of the project and the level of funding needed to move forward with the recommended treatment; each phase also identifies the anticipated level of compliance required for the treatment action.

The phases address both the guidelines applied to the overall study area and individual recommendations for the three detail areas.

- Implementation for the guidelines is listed by landscape characteristic. It is anticipated that projects will be developed in the future for specific segments of the canal corridor following these guidelines.
- Implementation for the detail areas bundles related tasks together into discrete project groups. Appendix F will include Class "C" Cost Estimates for the treatment actions specific to the three detail areas. (Appendix F will be added in the next draft submittal.)

The Cultural Landscape-FMSS Crosswalk Table provided in Appendix D provides a link between features identified in this report and the park's Facility Management Software System (FMSS). Treatment tasks are described in detail in Chapter 4.

Recommended Future Studies

Additional findings from the following recommended studies may be required to move forward with specific tasks identified in the treatment and implementation plan. Recommended future studies are described in detail in Chapter 4.

- Update the Ohio & Erie Canal National Historic Landmark (NHL) Nomination to evaluate expanding the NHL to include the full "watered" section of the canal corridor from Lock 36 through Lock 39.
- Coordinate with an interdisciplinary team including natural resources staff, cultural resources staff, interpretation staff, water resources engineer(s), the SHPO, the DNR, and other appropriate agencies to develop a long-term approach for river management with a focus on the relationship between the Cuyahoga River and adjacent historic features, including the canal berm and prism. Limited locations within the canal corridor are persistently threatened by movement of the Cuyahoga River within its floodplain and may not be feasibly protected by compatible slope stabilization measures.
- Conduct detailed hydrologic studies of individual culverts to identify appropriate location and size of supplemental drainage capacity or new culverts based on frequency of design storm, drainage area, and design flow while minimizing impacts to the historic fabric.
- Integrate data and recommendations from vegetation surveys along the canal corridor by the Natural Resource Management Assistant into selection of test sites for vernal pool establishment and refinement of vegetation management strategies.

Phase 1: Stabilization and Repair

Phase 1 identifies tasks needed for stabilization and repair of existing features. These tasks are immediate measures that address known risks to health and safety, resource protection, and routine grounds maintenance. Phase 1 tasks would likely fall under the nationwide NEPA programmatic agreement and would be subject to a streamlined Section 106 review. Undertake recommended future studies identified in the previous section before or during this phase to support projects in phases 2 and 3.

Phase 1: Overall Study Area Guidelines

Landscape Characteristic	Treatment Guideline or Recommendation
SPATIAL ORGANIZATION	
	Preserve contributing spatial relationships along the canal corridor by maintaining the existing patterns and relationships associated with contributing spatial organization.
BUILDINGS AND STRUCTURES	
	Preserve concrete and stone structures in the "unwatered" section of the canal corridor, including: • Lock 24 and spillway • Lock 25 and spillway • Yellow Creek Culvert • Ira Culvert • Lock 28 • Railroad bridge retaining wall • Arch Culvert • Lock 27 • Private Bridge • Furnace Run Aqueduct • Bolanz Floodgate • Lock 26 • Floodgate • Lock 30 and Spillway • Peninsula Feeder Complex • Lock 31 and spillway • Lock 35 and spillway • Hooker's Run Floodgate • Goose Pond Waste Weir/Floodgate • Basin • Road Bridge over Lock 34 Wasteway

	• Lock 34 and spillway • Brandywine Creek Culvert • Lock 33 and spillway • Stanford Creek Culvert North • Stanford Creek Culvert South
	Preserve contributing buildings and structures within the canal corridor.
	Monitor concrete caps on Locks 26, 30, 31, and 32 for continued stabilization performance.
NATURAL SYSTEMS, CLIMATE CHANGE, TOPOGRAPHY, AND VEGETATION	
	Protect the steep valley walls and associated unstable soils adjacent to the canal corridor.
	Preserve the gentle slope of the canal corridor downhill to the north. Avoid development that substantially alters the slope of the prism, berm, or Towpath Trail.
	Continue to manage vegetation for wetland and floodplain forest health in "unwatered" portions of the canal corridor where the prism and berm are no longer extant.
ARCHEOLOGICAL SITES	
	Preserve archeological sites along the canal corridor.
SMALL-SCALE FEATURES	
	Replace 30% of the existing benches with new benches that include arms to improve accessibility.
	Add new benches between Peninsula and Lock 30 and south of I-271.
	Continue to maintain existing site furnishings, signs, and guardrails in good condition. When features require replacement, use a palette consistent with the historic character of the canal corridor.
VISITOR EXPERIENCE	
	Preserve extant historic views and vistas within the canal corridor landscape by maintaining vegetation patterns.
	Screen views of modern development along the canal corridor using compatible vegetation.

Phase 1: Canal Exploration Center Detail Area Treatment

Project Group	Task Number	Treatment Task
1A	Stabilize and rehabilitate contributing buildings and structures in the Canal Exploration Center Detail Area.	
	C23	Preserve the Canal Exploration Center building and continue to use the structure for visitor services, exhibits, and park administration.
	C24	Preserve Lock 38 and maintain in good condition for lock demonstrations.
	C25	Restore the spillway.
1B	Maintain existing features that serve visitor comfort and experience within the Canal Exploration Center Detail Area.	
	C26	Maintain the comfort station.
	C28	Continue to utilize existing small-scale features and furnishings to support the detail area's graphic identity.

Phase 1: Boston Detail Area Treatment

Project Group	Task Number	Treatment Task
1C	Stabilize and rehabilitate contributing buildings and structures in the Boston Detail Area.	
	B17	Stabilize and preserve Lock 32, the spillway, and the waste weir.
	B20	Preserve buildings that contribute to the canal corridor and Boston Mills Historic District.
1D	Maintain existing features that serve visitor comfort and experience within the Boston Detail Area.	
	B7	Maintain the mown grass trail on the west side of the canal prism north of Boston Mills Road.
	B8	Maintain the pedestrian bridge across Lock 32 and the mown grass trail between the lock and waste weir.
	B14	Work with the community to determine if it is appropriate to manage vegetation to reestablish a view between the Towpath Trail and cemetery.
	B21	Maintain the M.D. Garage and Dzerzyski House (comfort station) for park use.

	B22	Maintain the fence between private properties, the cemetery, and the Towpath Trail.
	B23	When small-scale features require replacement, install features that are compatible with the historic character of the landscape.

Phase 1: Peninsula Detail Area Treatment

Project Group	Task Number	Treatment Task
1E	Stabilize and rehabilitate contributing buildings and structures in the Peninsula Detail Area.	
	P25	Stabilize the mill ruins.
	P26	Stabilize the concrete bridge at the mill ruins.
	P27	Stabilize and preserve Lock 29 and the Peninsula Aqueduct abutments.
1F	Maintain existing features that serve visitor comfort and experience within the Peninsula Detail Area.	
	P4	Continue to maintain the mown gathering space and benches along the east side of the Towpath Trail.
	P25	Maintain existing comfort station in good condition.
	P26	Work with the building owner to maintain existing railroad station in good condition.

Phase 2: Rehabilitation for Program Use and Accessibility

Phase 2 addresses rehabilitation of the overall study area and three detail areas for programmed use over the next 1 to 5 years. These tasks improve visitor access, enhance interpretation, and rehabilitate historic character, but are not anticipated to require an Environmental Assessment through NEPA.

Phase 2: Overall Study Area Guidelines

Landscape Characteristic	Treatment Guideline or Recommendation
CIRCULATION	
	Replace the Towpath Trail surface to represent the historic character of the towpath where it occupies its historic location.
	Replace or maintain boardwalks in good condition at Beaver Marsh and Stumpy Basin.
	Where the Towpath Trail no longer follows the historic route of the towpath, differentiate the trail surface using a color treatment that contrasts with portions of the trail on the historic route.
NATURAL SYSTEMS, CLIMATE CHANGE, TOPOGRAPHY, AND VEGETATION	
	Continue to maintain existing wetlands within the canal prism.
	Rehabilitate vegetation that supports the historic character of "watered" portions of the canal corridor.
VISITOR EXPERIENCE	
	Consider developing additional interpretation for topics related to canal-era landscape use. Where possible, cluster new interpretive nodes near existing interpretation or trailheads along the canal corridor to limit the addition of new features between trailheads. Railroad features (south of Lock 24) Deep Lock Quarry Railroad features (Lock 28) Historic vegetation (Pinery Narrows) Historic vegetation (Canal Road) Businesses associated with the canal (Lock 39)
	Consider representing missing canal-era features in the landscape. Missing features to be depicted in this manner may include buildings and structures associated with the canal, the canal prism, the berm, or the towpath. Conduct archival research and archeological investigations to support interpretation of missing buildings and structures.

Phase 2: Canal Exploration Center Detail Area Treatment

Project Group	Task Number	Treatment Task
2A	Improve access and interpretation at the Canal Exploration Center building and lock demonstration area.	
	C1	Consider interpreting missing historic structure using on-grade features.
	C2	Add program space and interpretive features on the west side of the Canal Exploration Center building.
	C5	Consider interpreting canal boat use and/or scale within the detail area.
	C6	Replace existing Towpath Trail surface with chip seal.
	C7	Add 5'-wide walkway with an irregular edge on the east side of Lock 38.
	C10	Replace the walkway along the east side of the Canal Exploration Center to increase space for lock demonstrations.
	C11	Clarify pedestrian circulation between the parking area and Canal Exploration Center building.
	C14	Maintain the existing pedestrian bridge.
	C16	Add a chip seal-paved program area on the west side of the walkway to the lower level of the Canal Exploration Center.
	C17	Remove woody understory vegetation between the lock and spillway.
2B	Rehabilitate vegetation along the Towpath Trail and Canal Exploration Center building.	
	C18	Add shade trees in informal groupings north of the Canal Exploration Center to screen views of the building's HVAC unit.
	C19	Add mid-height native grasses and herbaceous vegetation along the north and west sides of the Canal Exploration Center building.
	C20	Add irregularly spaced shade trees along the Towpath Trail and open lawn areas south and west of the Canal Exploration Center building.
2C	Add a picnic area and trails on the west side of the parking area.	
	C3	Add picnic and outdoor program space southwest of the existing parking area.
	C13	Add a concrete walkway along the south side of the parking area between the dropoff and the proposed covered pavilion.

	C15	Formalize social trails along the riverbank in locations that minimize erosion and provide access for fishing.
	C27	Consider adding an outdoor covered pavilion southwest of the parking area.
2D	Improve visibility and visitor experience between the railroad station and Canal Exploration Center.	
	C4	Add outdoor program space (meadow) east of the railroad station.
	C21	Replace understory vegetation with low-height native vegetation along both sides of the riverbank.
	C22	Add shade trees in informal groupings along the pedestrian route between the trail station and parking area.

Phase 2: Boston Detail Area Treatment

Project Group	Task Number	Treatment Task
2E	Improve interpretation and visibility of canal components north of Boston Mills Road.	
	B1	Interpret missing historic structures, boat yard, and dry dock north of Boston Mills Road using on-grade features.
	B11	Add a new mown grass trail connecting the waste weir, proposed interpretive features north of Boston Mills Road, and proposed sidewalk along Stanford Road.
	B15	Manage vegetation to reestablish views between Lock 32 and the Boston Store.
2F	Rehabilitate circulation routes to better represent the historic character of the Boston Detail Area.	
	B9	Replace the Towpath Trail surface with chip seal.
	B10	Add sidewalks compatible with the historic character of the landscape along Boston Mills Road and Sanford Road.
	B19	Consider representing the missing bridge over the canal prism at Boston Mills Road.

Phase 2: Peninsula Detail Area Treatment

Project Group	Task Number	Treatment Task
2G	Provide visitor access and interpretation of the mill ruins.	
	P2	Conduct a condition assessment of the mill ruins site to determine what treatments are necessary to preserve the historic property and identify the feasibility of adding an interpretive trail from the Towpath Trail to the mill ruins.
	P25	If an interpretive trail will be added to the mill ruins, reconstruct the existing features for safety and stability.
	P26	If an interpretive trail will be added to the mill ruins, reconstruct the bridge to function as part of the trail route.
	P31	Consider adding interpretive materials to enhance visitor understanding of the missing iron bridge.
2H	Enhance the historic character of existing circulation features within the Peninsula Detail Area.	
	P5	Replace the existing Towpath Trail surface with chip seal.
	P10	Remove the stairs between the trailhead and upper portion of Lock 29.
	P11	Widen the trail adjacent to Lock 29 consistent with its historic condition.
2I	Improve pedestrian circulation between the village of Peninsula and Lock 29 Trailhead.	
	P6	Relocate the Lock 29 trailhead to the northwest corner of the parking area.
	P7	Add a new walkway from the relocated trailhead to the Towpath Trail.
	P8	Continue to maintain the parking area in its existing location.
	P9	Add an 8′-wide concrete walkway on the south side of the existing parking area.
	P19	Replace or widen the sidewalk between the east bank of the river and railroad tracks.
	P29	Consider stabilizing the slope on the east side of the river with a soldier pile retaining wall.
	P30	Work with Cuyahoga Valley Scenic Railroad to add a fence or low stone or concrete barrier between the railroad track and the pedestrian walkway on the east side of the river.

Phase 3: Long-term Reconstruction and Restoration

Phase 3 tasks are long-term, large-scale reconstruction and restoration projects that may require evaluation through an Environmental Assessment. Retained water within the canal prism, stabilization or controlled erosion of the towpath berm, and improvements to infrastructure in the three detail areas are included in Phase 3.

Phase 3: Overall Study Area Guidelines

Landscape Characteristic	Treatment Guideline or Recommendation
BUILDINGS AND STRUCTURES	
	Rehabilitate earthen structures in the "unwatered" section of the canal corridor, including the prism and basins.
	Rehabilitate concrete and stone structures in the "watered" section of the canal corridor, including: Lock 36 Galley Run Mudcatcher Waste structures Lock 37 Lock 38 and spillway Lock 39 Tinkers Creek Aqueduct
	Rehabilitate Alexander's (Wilson's) Mill structures.
	Rehabilitate earthen structures in the "watered" section of the canal corridor, including the prism, Pinery Feeder, and the basin south of Lock 36.
CIRCULATION	
	Replace the Towpath Trail surface to represent the historic character of the towpath where it occupies its historic location.
	Replace or maintain boardwalks in good condition at Beaver Marsh and Stumpy Basin.
	Where the Towpath Trail no longer follows the historic route of the towpath, differentiate the trail surface using a color treatment that contrasts with portions of the trail on the historic route.
NATURAL SYSTEMS, CLIMATE CHANGE, TOPOGRAPHY, AND VEGETATION	
	Stabilize the towpath berm where the feature is threatened by erosion from the adjacent Cuyahoga River.
	Retain water within "unwatered" portions of the canal corridor and prism to enhance visibility of the prism and support creation of vernal pools. Where it is not feasible to retain water within the canal prism, continue to remove invasive

	understory vegetation to improve visual connections between the Towpath Trail and prism.
	Where tributaries intersect with the canal corridor and are continuously damaging and eroding the canal prism, berm, contributing culverts or other historic canal components, install culverts compatible with the historic character of the landscape.
	Dredge "watered" portions of the canal prism to remove silt buildup and support operation of the planned pump north of Station Road bridge.
	Manage vegetation to visualize the canal corridor and prism where the topography of the prism is intact in "unwatered" portions of the canal corridor.

Phase 3: Canal Exploration Center Detail Area Treatment

Project Group	Task Number	Treatment Task
3A	Reroute the Towpath Trail under the Hillside Road bridge and add a bypass route around the Canal Exploration Center for through traffic.	
	C8	Reroute Towpath Trail under the Hillside Road bridge.
	C9	Remove the segment of the Towpath Trail extending south from Hillside Road to Lock 38.
	C12	Add a bypass route for bicycle traffic around the west side of the Canal Exploration Center.
3B	Relocate utilities impacting the view between the Canal Exploration Center building and Canal Road.	
	C29	Coordinate with local utilities to bury overhead lines.

Phase 3: Boston Detail Area Treatment

Project Group	Task Number	Treatment Task
3C	Identify a long-term location for parking for the village of Boston.	
	B12	Continue working with the concurrent CAP project to identify a location for overflow parking that serves the village of Boston.
	B16	Maintain lawn south of Boston Mills Road and east of the canal prism to provide open program space.
3D	Clarify circulation southwest of the Boston Store to improve access, interpretation, and pedestrian connections to the Towpath Trail.	
	B2	Interpret the historic warehouse formerly attached to the southside of the Boston Store using an on-grade feature or wayside.
	B3	Consider interpreting the commercial hotel on the M.D. Garage site using an on-grade feature or wayside.
	B4	In the long term, remove existing limited mobility parking and add new limited mobility parking along the historic route of Cuyahoga Street.
	B5	In the long term, add a pedestrian walkway between the limited mobility parking and the Towpath Trail following the historic routes of Cuyahoga Street and South Street.
	B6	In the long term, add universally accessible walkways between Cuyahoga Street and the Towpath Trail along the historic right-of-way immediately south of the Boston Store.
	B13	Manage vegetation to reestablish views between the picnic area south of the Boston Store and the river.
3E	Divert stormwater into the canal prism south of Boston.	
	B18	Consider diverting stormwater runoff into the canal prism to support climate resilience in the detail area.

Phase 3: Peninsula Detail Area Treatment

Project Group	Task Number	Treatment Task
3G	Provide a secondary circulation route through the detail area using the historic location of the Peninsula Aqueduct.	
	P1	Reestablish a walkway in the historic location of the aqueduct to provide a secondary circulation route through the detail area.
	P12	Add a ramp through Lock 29.
	P13	Construct a bridge in the historic location of the aqueduct, west of the existing pedestrian bridge.
	P14	Add an on-grade route connecting between the new bridge and Towpath Trail south of the river.
	P15	Add an on-grade route connecting between the new ramp and Towpath Trail north of Lock 29.
	P16	Continue to maintain the existing pedestrian bridge over Lock 29.
	P17	Retain the existing wayside bump-out on the west side of Lock 29.
	P18	Reconfigure the north end of the walkway over Lock 29 to meet the Towpath Trail at its intersection with the new trailhead walkway.
	P20	Add steep bumps or other traffic calming measures to slow bicycles at the north and south ends of the detail area.
3H	Enhance visibility and interpretation of the canal prism and provide a gathering space south of Lock 29.	
	P3	Modify the vegetation and/or grade to visualize the canal prism south of the river. Incorporate a small seating area into the design of the feature.
	P21	Selectively remove vegetation to improve visibility of the canal prism on the north side of the river.
	P22	Add woodland vegetation between the parking and prism to visually delineate the historic location of the prism.
	P23	Retain woodland vegetation on the slope west of the Towpath Trail to obscure views of adjacent development.
	P24	Consider adding low herbaceous vegetation in the location of the prism south of the river.
	P28	Consider adding a low stone retaining wall on the west side of the prism south of the river to delineate the historic location of the prism.



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A Exhibits



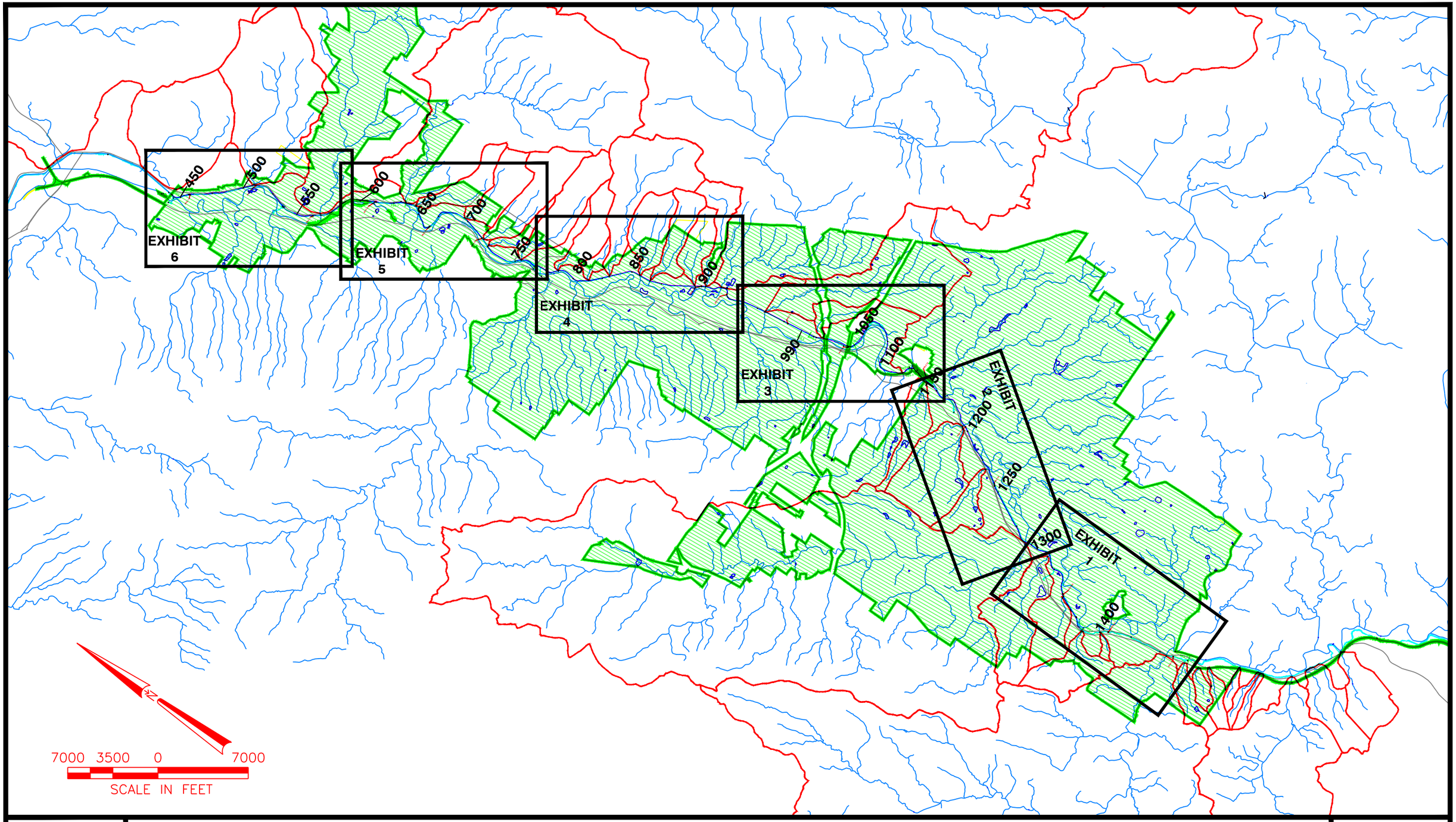
Lock 31, 1892 (CVNP Slide D-3).

Appendix A: Exhibits

The following exhibits map the towpath and canal prism from the Botzum trailhead on the south end of the park to the Lock 39 trailhead on the north. The exhibits illustrate the towpath and canal prism alignment with stationing and mile markers, the Cuyahoga River alignment, the park boundary where applicable, the railroad alignment, the location of towpath boardwalks, various structure and culvert locations, and picture number references for various structures, culverts, and features. Drainage channels and drainage areas, in acres, are also indicated for all areas draining to the canal prism and towpath.

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NPS OHIO & ERIE CANAL

CUYAHOGA VALLEY NATIONAL PARK, OHIO

OVERALL

U:\2020\20-135\Exhibits\2020-12-15 Drainage Areas\Exhibits- CULVERTS 1- 6 -11X17.dwg Plotted: Jul 01, 2022 - 10:40am by snader

LEGEND:

- DRAINAGE BOUNDARY
- TOW PATH
- CANAL PRISM (UNWATERED)
- CANAL PRISM (WATERED)
- PARK BOUNDARY
- RIVER
- RAILROAD
- BOARDWALK
- 680 STATION

MATCH EXHIBIT 2

1458 HISTORIC CULVERT BOLANZ FLOOD GATE

1616 CANALWAY CULVERT RD/PATH OVER PRISM ±30" HDPE

CUYAHOGA RIVER

1409 ± 24" CMP

1310 DBL ± 24" CMP

1318 CULVERT ?

1322 CULVERT ?

1686 TUMBLE

Lock #24 (O. & E. Canal)

Lock # 24 Spillway (O&E Canal)

Lock #25 (O. & E. Canal)

Lock #26-Pancake Lock (O. & E. Canal)

MILE 27

MILE 28a

MILE 28

MILE 29

1650 EROSION IN CANAL PRISM

634 BEAVER MARSH

Ira Trailhead

SEG 2 SEG 1

1308 ±24" CMP

1682 ± 24" CMP

1673 ± 18" HDPE

5265 YELLOW CREEK CULVERT (HISTORIC)

1641 BOARDWALK OVER BEAVER MARSH

1626 BOARDWALK OVER BEAVER MARSH

1349 IRA ROAD CULVERT (HISTORIC)

Indigo Lake Station

FURNACE RUN

616 AC

394 AC

95 AC

26 AC

168 AC

378 AC

19,937 AC

1000 500 0 1000

SCALE IN FEET

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MATCH EXHIBIT 3

1638
PED BRIDGE OVER
CANAL PRISM

1611
BRIDGE OVER
STREAM

1634
RR TUNNEL

ARCH CULVERT
(HISTORIC)
COULD NOT FIND

1549
± 24" CMP

1553
BRIDGE OVER
STREAM

1652
± 24" CMP

1482
PED BRIDGE OVER
FURNACE RUN

1500
± 15" CMP
CANALWAY CULVERT
RD/PATH OVER PRISM

1663
± 18" CMP

1671
±8" HDPE

1685
RIVER
ENCROACHMENT

1679
RIVER
ENCROACHMENT

DICKERSON RUN
LANGES RUN
ROBINSON RUN
SALT RUN
RITCHIE RUN
HASKELL RUN
CUYAHOGA RIVER

Deep Lock Trailhead

Lock #28-Deep Lock (O. & E. Canal) Spillway

Lock #27-Johnny Cake Lock (O. & E. Canal) Spillway

MILE 25
MILE 26

105 AC
208 AC
129 AC
702 AC
198 AC

LEGEND:

- DRAINAGE BOUNDARY
- TOW PATH
- CANAL PRISM (UNWATERED)
- CANAL PRISM (WATERED)
- PARK BOUNDARY
- RIVER
- RAILROAD
- BOARDWALK
- 680 STATION

1000 500 0 1000
SCALE IN FEET

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MATCH EXHIBIT 4

160 AC

1,329 AC

148 AC

76 AC

201 AC

STANDFORD RUN

CUYAHOGA RIVER

1742 RIVER ENCROACHMENT

1736 RIVER ENCROACHMENT

Lock #33 (O. & E. Canal)

940

945

955

960

965

970

960

100 STANFORD CREEK CULVERT SOUTH (HISTORIC)

1728 BRIDGE BOARDWALK OVER WET AREA

MILE 21

980

985

990

995

1005

1010

1015

1020

1025

1030

1035

1040

1045

1050

1055

1060

1065

1070

1075

1080

1085

1090

1095

1100

1105

1110

1115

1120

Boston Trailhead

Lock #32 (O. & E. Canal) Spillway - Near Lock #32

1872 CULVERT

1837 CULVERT ?

1835 CULVERT ?

1832 CULVERT ?

1800 CULVERT ?

STUMPY BASIN

BOARDWALK

Lock #31-Lonesome Lock (O. & E. Canal)

Lock #29 & Aqueduct-Peninsula Lock (O. & E. Canal)

583 RIVER

MILE 22

MILE 23

SEG 5

SEG 4

SEG 3

SEG 2

Lock 29 Trailhead

1718 STANFORD CREEK CULVERT NORTH NEW CULVERT

1705 ± 30" HDPE PRISM CULVERT FOR TOW PATH OVER PRISM

1579 PED BRIDGE

1572 ± 36" HDPE

939 RIVER ENCROACHMENT

1865 CULVERT ?

1859 CULVERT ?

1852 ±15" CMP

1856 ±15" CMP

1848 CULVERT ?

1845 ±18" CMP

1828 ±24" CMP

1793 ±15" CMP

692 PENINSULA FEEDER COMPLEX

1783 CULVERT ?

Lock #30 Feeder Lock (O. & E. Canal)

1763 ±15" CMP

1761 RCB

PENINSULA AQUEDUCT

Peninsula Depot Visitor Center

1753 ±36" WITH HEADWALL

LEGEND:

- DRAINAGE BOUNDARY
- TOW PATH
- CANAL PRISM (UNWATERED)
- CANAL PRISM (WATERED)
- PARK BOUNDARY
- RIVER
- RAILROAD
- BOARDWALK
- 680 STATION

N

1000 500 0 1000

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MATCH EXHIBIT 5

886 AC

357 AC

273 AC

273 AC

231 AC

67 AC

67 AC

37 AC

20 AC

14 AC

52 AC

14 AC

154 AC

± 36" CMP

MILE 17

SEG 5

PHL

1842 DS OF SEEPAGE POSSIBLE BURIED CULVERT

1852 N END CHANNEL DUG TO REROUTE DRAINAGE TO EXISTING CULVERT

HOOKERS RUN

1862 ± 18" STEEL

Lock #35 (O. & E. Canal)

MILE 18

MILE 9

998 ±8'X4' BOX CULVERT

Lock #34-Red Lock (O. & E. Canal)

770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905

200 BOX CULVERT

CHIPPEWA CREEK

832 DBL ±36"CMP

1886 GROUND WATER SEEPING OVER TOWPATH

CUYAHOGA RIVER

1870 HOOKER'S RUN FLOOD GATE

1875 ± 24" CMP?

1881 TOW PATH BRIDGE OVER STREAM

1880 GOOSE POND WASTE WEIR

1882 ? CULVERT

3231 DOUBLE ELLIPTICAL STEEL CULVERT

1011 BURIED CULVERT

793 ± 48" CMP

1779 ± 36" RCP

1768

MILE 19

MILE 20

Red Lock Trailhead

LEGEND:

- DRAINAGE BOUNDARY
- TOW PATH
- CANAL PRISM (UNWATERED)
- CANAL PRISM (WATERED)
- PARK BOUNDARY
- RIVER
- RAILROAD
- BOARDWALK
- 680 STATION

N

1000 500 0 1000

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MATCH EXHIBIT 4

SAGAMORE CREEK

2,865 AC

Lock #37 (14 Mile Lock) & Spillway (O. & E. Canal)

Lock #37 Spillway

1908 EROSION AND SILTATION AT LOCK 37

Frazee House

280 AC

SEG 6

SEG 7

334 AC

86 AC

MILE 14

MILE 15

MILE 16

MILE 17

SAGAMORE CREEK CULVERT

1543 WASTE WEIR

1541 SAGAMORE CREEK WASTE WEIR

CUYAHOGA RIVER

1895 SILTATION

33 AC

493 AC

92 AC

48 AC

GAULLEY RUN

480 AC

1893 SILTATION

1888 SILTATION

1501 MUD CATCHER

Lock #36 (O. & E. Canal)

1491 ± 36" CMP

154 AC

1490 NEW PED BRIDGE

615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770

DRAINAGE BOUNDARY

CANAL PRISM (UNWATERED)

CANAL PRISM (WATERED)

PARK BOUNDARY

BOARDWALK

1000 500 0 1000

SCALE IN FEET

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CUYAHOGA VALLEY NATIONAL PARK, OHIO

EXHIBIT

5

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Thornburg Station

Trailhead

WASTE WEIR

Lock # 39 Spillway

Lock #39-11 Mile Lock & Spillway (O. & E. Canal)

Lock 39 Wasteway

MILE 11

MILE 12

MILE 12

MILE 13

MILE 13

1,812 AC

275 AC

DOUBLE BOX CULVERT (NEW)

BOX CULVERT (NEW)

143 AC

62,247 AC

CUYAHOGA RIVER

TINKERS CREEK

1343 TINKERS CREEK AQUEDUCT

Lock #38-12 Mile Lock & Spillway (O. & E. Canal)

Lock # 38 Spillway

Canal Visitor Center

450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590

MATCH EXHIBIT 5

DRAINAGE BOUNDARY

CANAL PRISM (UNWATERED)

CANAL PRISM (WATERED)

PARK BOUNDARY

BOARDWALK

1000 500 0 1000

SCALE IN FEET

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CUYAHOGA VALLEY NATIONAL PARK, OHIO

EXHIBIT 6



B Treatment Concepts Considered and Dismissed



Canal near Lock 37, 1890 (CVNP Slide D-8).

Appendix B: Treatment Concepts Considered and Dismissed

This appendix presents treatment concepts considered for rehabilitation of the Ohio & Erie Canal cultural landscape detail areas but dismissed due to incompatibility with the park's goals for maintenance, use, and interpretation. The appendix is intended to serve as a record of the Cultural Landscape Report decision-making process.

Treatment concepts were presented through a series of three remote workshops on October 13, 2021 (Boston Detail Area), October 14, 2021 (Canal Exploration Center Detail Area), and October 20, 2021 (Peninsula Detail Area). Two options were developed for each detail area:[1]

1. **Visualize as much of the canal landscape as possible**
   For all three detail areas, Option 1 focused on enhancing the character of the detail area to better represent historic character during the canal cultural landscape period of significance (1825–1913). Where canal components are no longer extant, the concept proposed representing or referencing missing features and relationships.

2. **Emphasize historic condition in targeted locations**
   Option 2 concepts for the detail areas focused rehabilitation efforts in specific locations with high integrity while providing improved arrangements for pedestrian and vehicular circulation and program space.

A follow-up meeting on November 19, 2021 confirmed the preferred treatment for the detail areas. A refined version of Option 1 was selected for all three detail areas and is presented in Chapter 4: Treatment Plan.

Canal Exploration Center Detail Area

Option 1

Option 1 proposes to enhance landscape character along the Towpath Trail and spillway island to better represent historic condition in the vicinity of Lock 38 during the period of significance (1825–1913). The concept reestablishes the Towpath Trail route adjacent to the canal prism in addition to a bypass route that directs through-traffic around the Canal Exploration Center rather than between the building and the lock. Missing canal features and relationships are proposed to be represented or referenced in the landscape. As there is relatively little documentation of historic condition west of the Canal Exploration Center building, the existing parking area is recommended to be retained. Vegetation modifications are proposed to enhance visual connections between the Canal Exploration Center and train station, and program space is expanded at the train station to support increased use along the northern end of the canal corridor. Option 1 is illustrated on Figure B- 1. Key recommendations include:

1. Remove understory vegetation between lock and spillway. Retain canopy trees.
2. Restore spillway.
3. Replace pedestrian bridge with accessible structure meeting adjacent grades.
4. Add walkway with irregular edge on east side of lock. Establish 6"–18" grass along edge.
5. Maintain lock gates open to allow water flow through structure.

[1] A third option for the Peninsula Detail Area provides an additional circulation scheme.

6. Expand walkway with irregular edge along the east side of the CEC building.
7. Bury overhead utilities.
8. Reroute Towpath Trail under Hillside Road bridge.
9. Add canopy trees along north and east sides of CEC building. Maintain mid-height native grasses, forbs, and shrubs.
10. Add irregularly spaced canopy trees along towpath trail.
11. Interpret select missing buildings.
12. Simplify walkways to direct visitors to the front (east) door to the CEC and provide universally accessible routes to both entrances.
13. Add program space and interpretive features on west side of CEC building.
14. Provide interpretation and relocate restrooms in CEC basement level.
15. Remove comfort station.
16. Relocate bike traffic off of the Towpath Trail.
17. Expand program space (meadow) east of railroad station.
18. Replace invasive understory vegetation with low-height native vegetation.
19. Consider enhancing pedestrian route from train station to parking area by planting shade trees.
20. Discourage social trails through tree, shrub, and native grassland plantings.

Option 1 was refined as the preferred treatment concept for the Canal Exploration Center detail area with the following clarifications:

- Additional outdoor program space and trails were incorporated along the Cuyahoga River on the west end of the parking area (refer to Option 2).
- The comfort station will be retained as a separate structure, as it is not feasible to relocate all visitor amenities to the lower level of the Canal Exploration Center building.
- The bypass route will be separated from Hillside Road and the parking area in order to reduce conflicts between vehicles and trail users.
- NPS does not desire kayak/canoe access to the canal. There are too many downed trees to maintain the watered section for consistent use.
- Accessible picnic tables will be added to the walkway between the parking area and Canal Exploration Center.
- Additional shade trees will be added along the walkway from the railroad station to the parking area.
- The selected treatment will recommend maintaining one lock gate open and one closed.

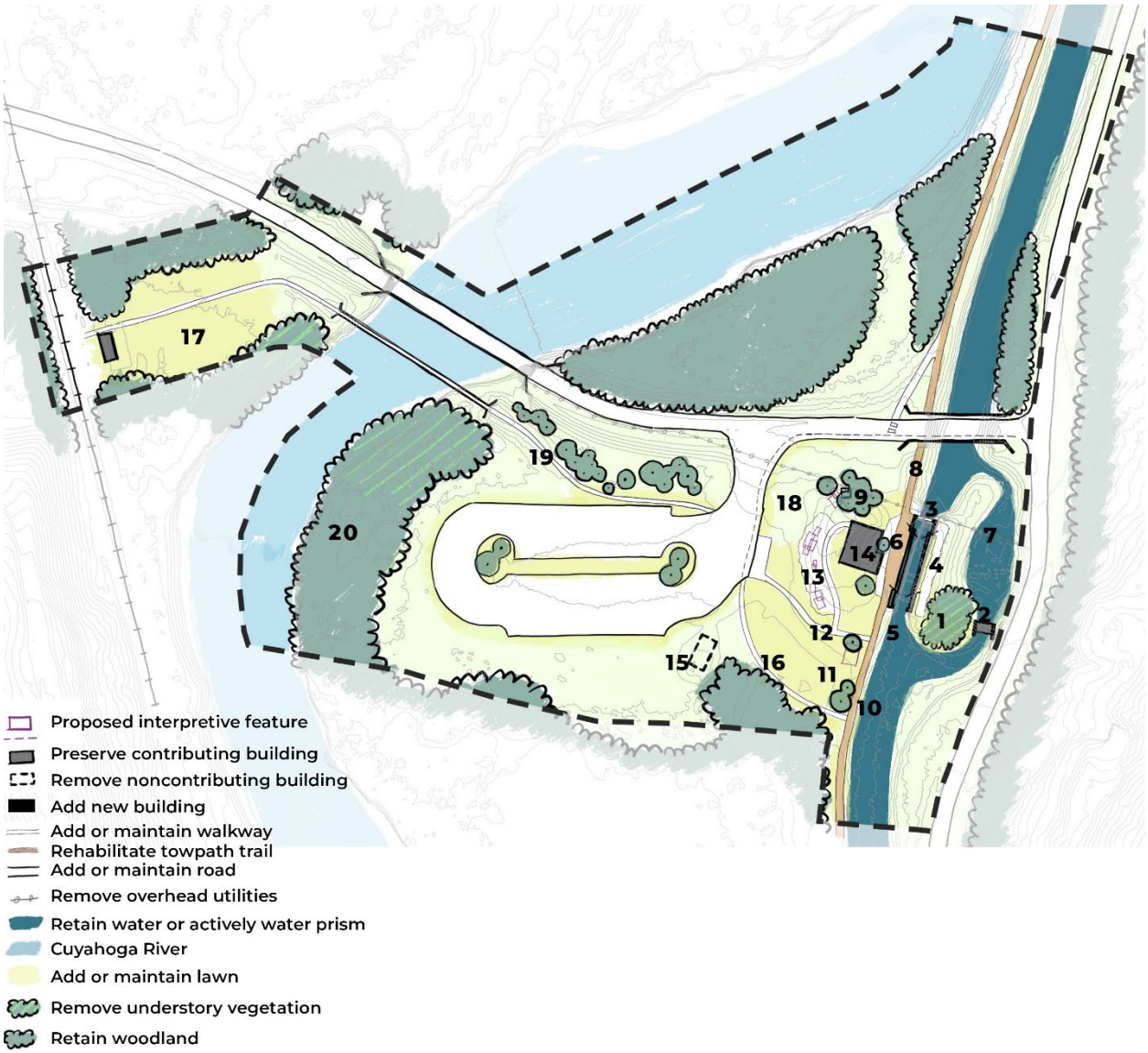


Figure B- 1: Canal Exploration Center Option 1.

Option 2

The Canal Exploration Center Detail Area Option 2 proposes rehabilitating historic views along the canal corridor and improving access to the lock demonstration area. Through-traffic would be routed off of the Towpath Trail around the west side of the Canal Exploration Center building, reducing the load on the existing route north of Lock 38. The concept proposes improving access to the lock demonstration area and the spillway island, as well as expanding outdoor program areas adjacent to the Canal Exploration Center. Option 2 is illustrated on Figure B- 2. Key recommendations include:

1. Remove understory vegetation between lock and spillway. Retain canopy trees.
2. Restore spillway.
3. Replace pedestrian bridge with accessible structure meeting adjacent grades.
4. Add walkway with irregular edge on east side of lock.
5. Maintain lock gates open to allow water flow through structure.
6. Expand walkway with irregular edge along the east side of the CEC building.
7. Bury overhead utilities.
8. Add canopy trees along north and east sides of CEC building. Maintain low rough lawn under canopy.
9. Add irregularly spaced canopy trees along towpath trail and open lawn areas south of CEC building.
10. Simplify walkways to direct visitors to the front (east) door to the CEC and provide universally accessible routes to both entrances.
11. Add mid-height native grasses and herbaceous vegetation along north and west side of CEC building.
12. Provide interpretation in CEC basement level.
13. Relocate bike traffic off of Towpath Trail.
14. Replace invasive understory vegetation with low-height native vegetation.
15. Consider enhancing pedestrian route from train station to parking area by planting shade trees.
16. Formalize social trails along riverbank.

Option 2 was dismissed because the historic circulation patterns presented in Option 1 provide improved opportunities for interpretation and rehabilitation of historic character compared to the existing non-contributing routes. Formalized trails along the Cuyahoga River are incorporated into the preferred treatment concept.



Figure B- 2: Canal Exploration Center Option 2.

Boston Detail Area

Option 1

Option 1 emphasizes the historic condition of the Boston Detail Area during the canal cultural landscape period of significance (1825–1913). To support the character of the landscape during this time period, features added outside of the canal period of significance (including those that were added during the company town era) are recommended to be removed. The concept proposes to retain water within the prism as possible and restore concrete and stone structures. Where canal components are no longer extant, represent or reference missing canal features and relationships. Historic patterns are recommended as the basis for pedestrian and vehicular circulation improvements adjacent to the Boston Store and Towpath Trail, and the overflow parking area is recommended to be removed. Option 1 is illustrated on Figure B- 3. Key recommendations include:

1. Consider diverting or retaining water within the prism.
2. Remove noncontributing structures (including structures that contribute to the company town era period of significance) and overflow parking.
3. Interpret missing historic structures.
4. Maintain trail.
5. Reestablish views between the detail area and river. Maintain vegetation to stabilize the riverbank.
6. Establish new road and limited mobility parking along historic routes.
7. Add a new accessible walkway along the historic right-of-way south of the Boston Store.
8. Establish on-grade pedestrian walkways along road shoulders consistent with the historic character of the village.
9. Represent the missing bridge over the canal prism.
10. Interpret missing historic structures, boat yard, and dry dock.
11. Add trail north of Boston Mills Road.
12. In the long term, acquire or establish agreements with adjacent property owners and remove the fence between the Towpath Trail and adjacent properties.
13. Consider diverting or retaining water within the basin and spillway.
14. Restore Lock 32 and spillway.
15. Manage vegetation to reestablish view between Towpath Trail and cemetery.

Although Option 1 was selected as the preferred treatment for the Boston Detail Area, several aspects of the concept were dismissed to better align with the park's long-term goals:

- Removal of contributing features outside the canal era period of significance. This concept was dismissed as it is important to represent the multiple periods of development that shaped the Village of Boston. In addition, the M.D. Garage and comfort station have public and administrative uses and should not be removed.
- The park did not express a desire to acquire private properties adjacent to the Towpath Trail; the fence between these properties and the trail will be maintained.



Figure B- 3: Boston Detail Area Option 1.

Option 2

Option 2 recommends enhancing historic character (1825–1913) within only a portion of the detail area along the canal corridor north of Boston Mills Road and adjacent to the Boston Store. To support historic character, the option proposes to visualize the canal prism and reestablish historic views along the corridor and visualize or reference missing canal features and relationships north of Boston Mills Road. Non-contributing buildings and structures and company town-era features are retained in this option, including the M.D. Garage and comfort station. Option 2 draws from existing features to improve pedestrian and vehicular circulation adjacent to the Boston Store and Towpath Trail. Limited mobility parking in the northern half of the existing parking area is recommended to be retained, while the southern half of the parking area would be converted to a walkway and picnic area. The overflow parking would be retained, but visually screened from other portions of the detail area. Option 2 is illustrated on Figure B- 4. Key recommendations include:

1. Selectively remove vegetation to improve visibility of canal prism. Maintain large trees (>6" within and along the edges of the prism. Consider alternate herbaceous planting to differentiate from nearby lawns.
2. Remove pavement and add trail in location of former parking area. Establish picnic area south of the walkway.
3. Retain limited mobility parking within partial footprint of existing parking area.
4. Add new accessible walkway along approximate historic right-of-way.
5. If determined appropriate by CAP, site parking as far south as possible within the detail area. Establish vegetative screening around margins.
6. Add trail connecting new parking area to towpath trail.
7. Retain lawn as program space.
8. Interpret missing historic structures, boat yard, and dry dock.
9. Add trail connecting to Towpath Trail.
10. Maintain fence in existing location between Towpath Trail and private property.
11. Preserve Lock 32 and spillway and maintain bridge over lock.
12. Manage vegetation to reestablish view between Towpath Trail and cemetery.
13. Continue to retain water within Boston Basin.

Option 2 was dismissed because the historic circulation patterns presented in Option 1 provide richer opportunities for interpretation and rehabilitation of historic character than the existing non-contributing routes. Some portions of the concept, including screening overflow parking, maintaining non-contributing buildings and structures, and maintaining fences along the west side of the Towpath Trail, are incorporated into the preferred treatment.



Figure B- 4: Boston Detail Area Option 2.

Peninsula Detail Area

Option 1

Peninsula Detail Area Option 1 proposes enhancing historic character through interventions that also address circulation conflicts at this complicated intersection between the river, Towpath Trail, and grist mill ruins. A secondary route is proposed along the alignment of the aqueduct to separate pedestrian and bicycle user groups and improve safety at Lock 29, while reestablishing missing historic spatial patterns. Visibility of the canal prism would be improved both north and south of the river through vegetation treatment. The concept also recommends stabilizing the mill ruins and adding a formal trail to the mill ruin site, utilizing the historic bridge location. Additional circulation improvements include a new sidewalk proposed along the north side of the parking area to provide a designated route between the comfort station and trailhead, and improvements to the walkway adjacent to the railroad tracks to improve pedestrian safety. Option 1 is illustrated on Figure B- 5. Key recommendations include:

1. Add walkway on north side of parking area.
2. Relocate trailhead to north.
3. Add new walkway from trailhead to Towpath Trail.
4. Selectively remove vegetation to improve visibility of canal prism. Maintain large trees (>6”) within and along the edges of the prism.
5. Remove stairs.
6. Widen trail adjacent to Lock 29 consistent with historic condition.
7. Add ramp through Lock 29.
8. Add new bridge in location of aqueduct.
9. Add on-grade route connecting between new bridge and Towpath Trail.
10. Stabilize or reconstruct mill ruins.
11. Replace concrete bridge at mill ruins.
12. Add trail and overlook to interpret mill ruins.
13. Consider adding seating/gathering area as part of prism interpretation.
14. Interpret missing bridge.
15. Consider stabilizing slope with soldier pile retaining wall compatible with historic character.
16. Widen walkway between river and railroad and add fence between walkway and railroad tracks.

A refined version of Option 1 is the selected treatment concept for the Peninsula Detail Area presented in Chapter 4. Minor modifications to the concept incorporated into the selected treatment include:

- The pedestrian walkway connecting between the trailhead and comfort station is relocated to the south side of the parking area and may also serve as a river access location.

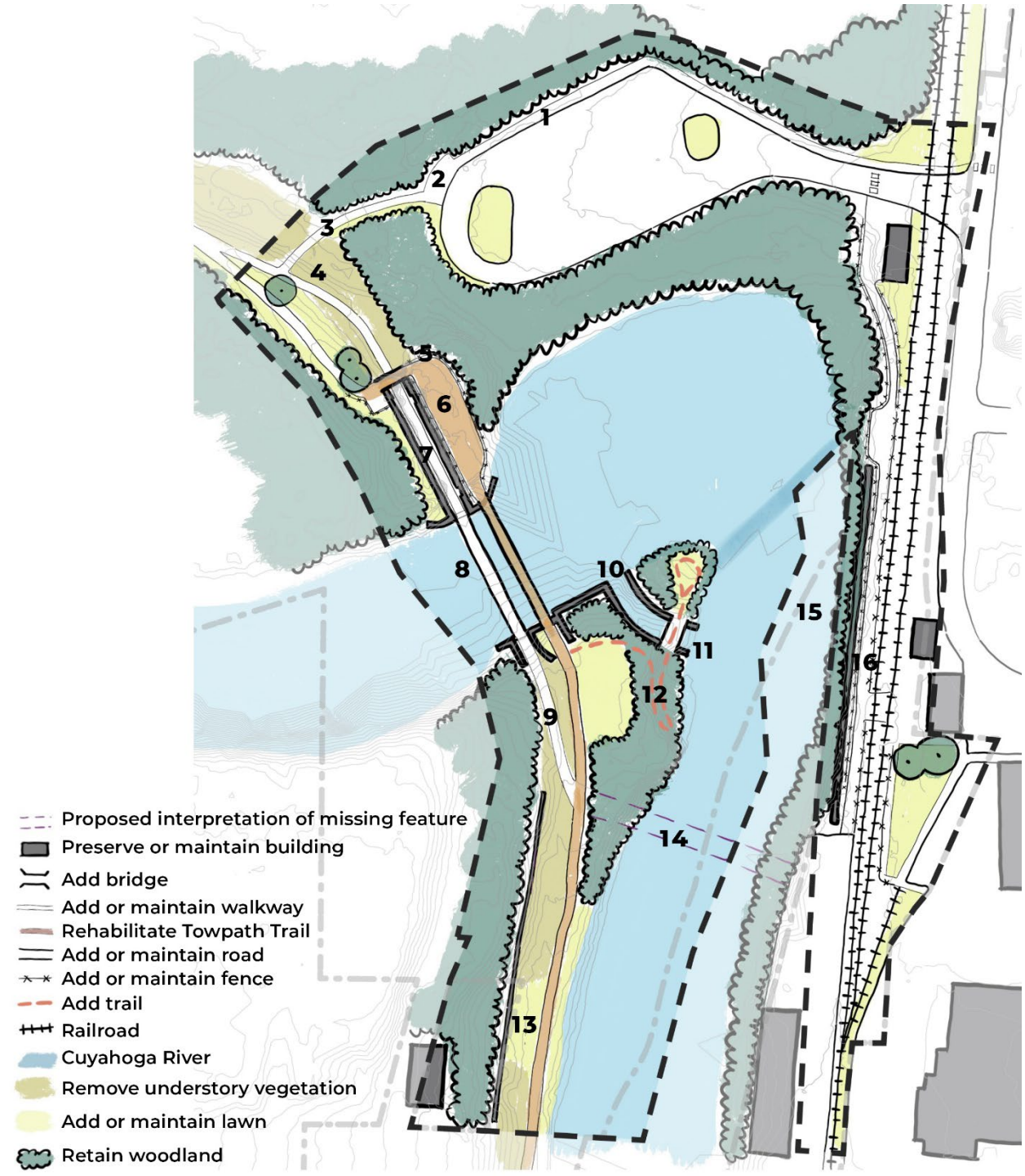


Figure B- 5: Peninsula Detail Area Option 1.

Option 2

Option 2 focuses on reconfiguring circulation routes to avoid pedestrian and bicycle conflicts on the north side of Lock 29. Similar to Option 1, pedestrian safety is improved through new or expanded routes along the parking area and railroad tracks; in Option 2, the walkway between the trailhead and comfort station is provided on the south side of the parking area. Visibility of the canal prism is recommended to be enhanced through vegetation treatment on the north side of the river. The concept proposes stabilizing the mill ruins but limiting access to the site. Additional interpretive features will support visitor understanding of the missing iron bridge, aqueduct, and canal prism. Option 2 is illustrated on Figure B-6. Key recommendations include:

1. Add walkway on south side of parking area.
2. Relocate trailhead to south.
3. Selectively remove vegetation to improve visibility of canal prism. Maintain large trees (>6”) within and along the edges of the prism.
4. Add bridge extending north from top of Lock 29 to Towpath Trail.
5. Add walkway from trailhead to Lock 29, under the new bridge. Maintain pedestrian walkway into the bottom of the lock.
6. Add a new pedestrian walkway that loops under trail to provide accessible route to top of Lock 29.
7. Remove stairs.
8. Interpret missing aqueduct.
9. Add interpretive feature to visualize canal prism.
10. Stabilize mill ruins.
11. Stabilize concrete bridge at mill ruins.
12. Remove understory vegetation to improve views between Towpath Trail and mill ruins. Continue to interpret mill ruins from the trail.
13. Replace fence with feature compatible with historic character.
14. Interpret missing bridge.
15. Consider stabilizing slope with soldier pile retaining wall compatible with historic character.
16. Widen walkway between river and railroad and add low wall between walkway and railroad tracks.

Option 2 was dismissed from further consideration due to the complexity of the proposed intersection north of Lock 29, which would require several bridging elements. In addition, the circulation recommends new features rather than incorporating historic routes. Some aspects of Option 2 are incorporated into the preferred treatment, including the pedestrian walkway along the south side of the parking area.

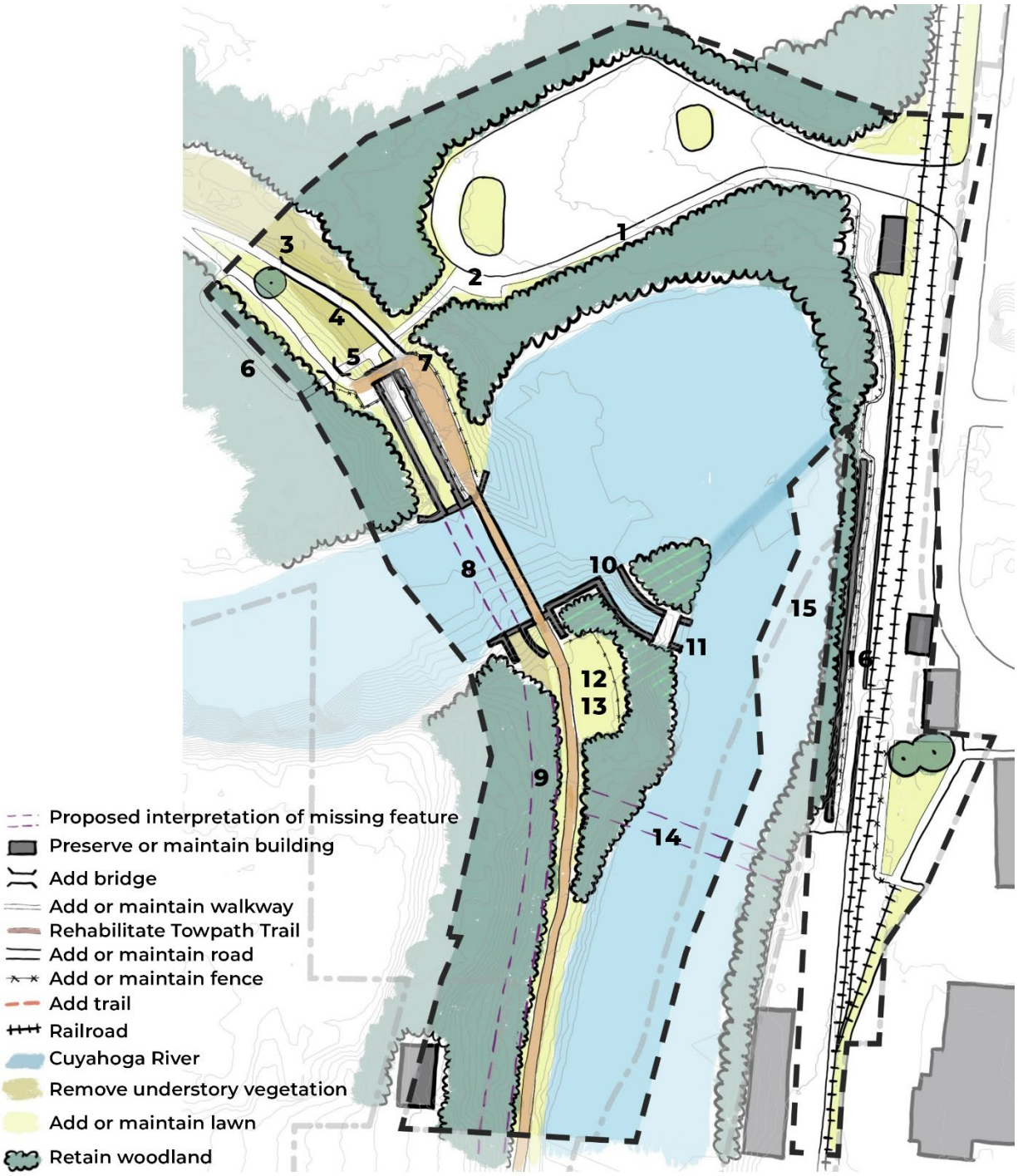


Figure B- 6: Peninsula Detail Area Option 2.

Option 3

Option 3 for the Peninsula Detail Area proposes a third circulation scheme to reduce pedestrian and bicycle conflicts: a bypass route following the historic route of the iron bridge east over the Cuyahoga River. The existing route along the railroad tracks and proposed walkway on the south side of the parking area would form the rest of the bypass route. This option was dismissed as it would increase traffic along the already congested route along the railroad tracks. Option 3 is illustrated on Figure B- 7.

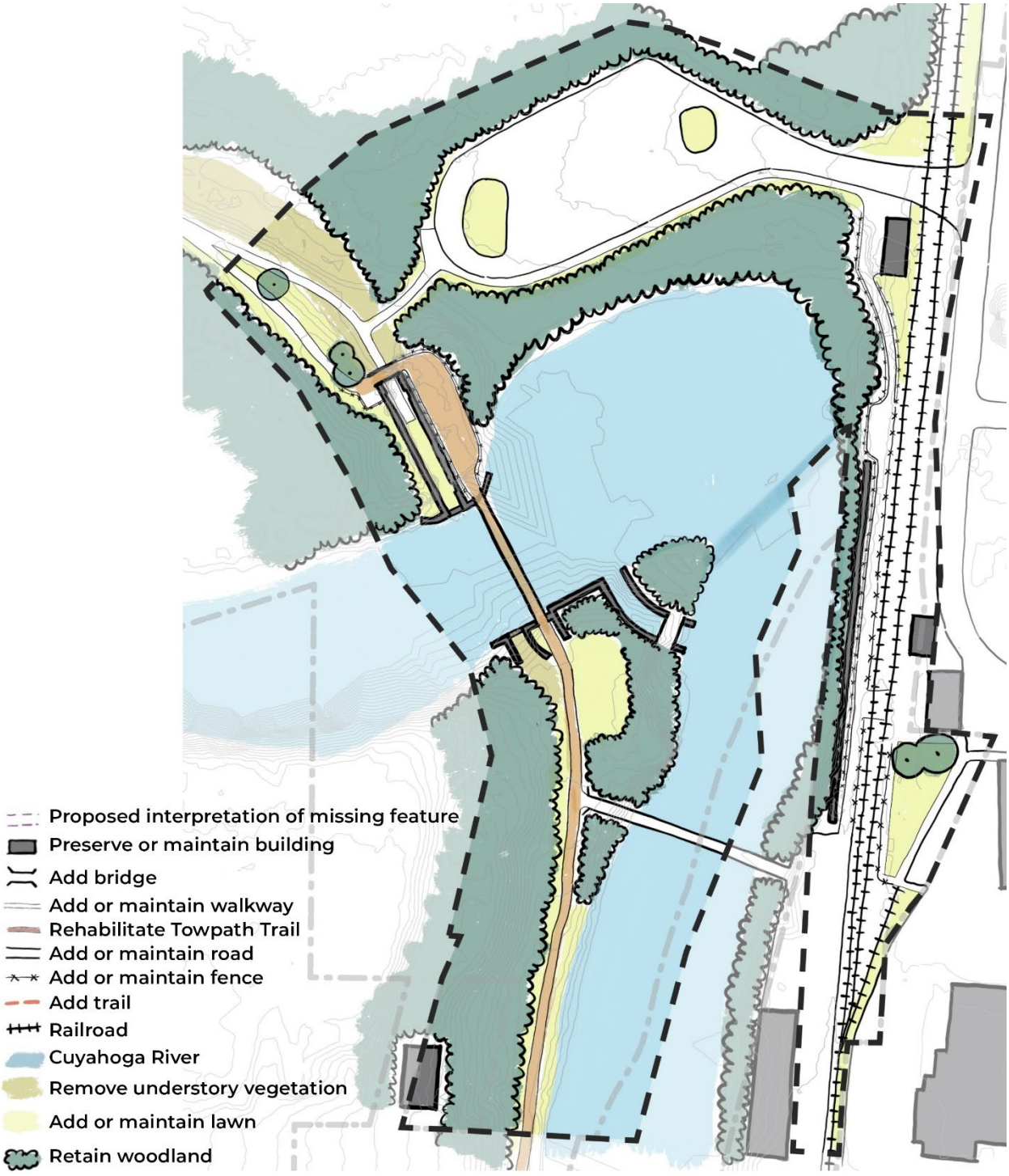


Figure B- 7: Peninsula Detail Area Option 3.



C Archival Repositories



Moody Grist Mill at Peninsula, 1902 (CVNP Photo 90x).

Appendix C: Archival Repositories

Cuyahoga Valley National Park Archives.

- CUVA 15290
- CUVA 15294
- CUVA 15295
- CUVA 15296
- CUVA 15297
- CUVA 15298
- CUVA 15299
- CUVA 15311 Oversized Materials
- 7 series photos
- 90 series photos
- CA, CB, CC, and D series photos
- Unaccessioned maps, drawings, and reports

Edwin Bell Howe Photograph Collection, Summit Memory. Accessed at https://summitmemory.org/digital/collection/ebhowe.

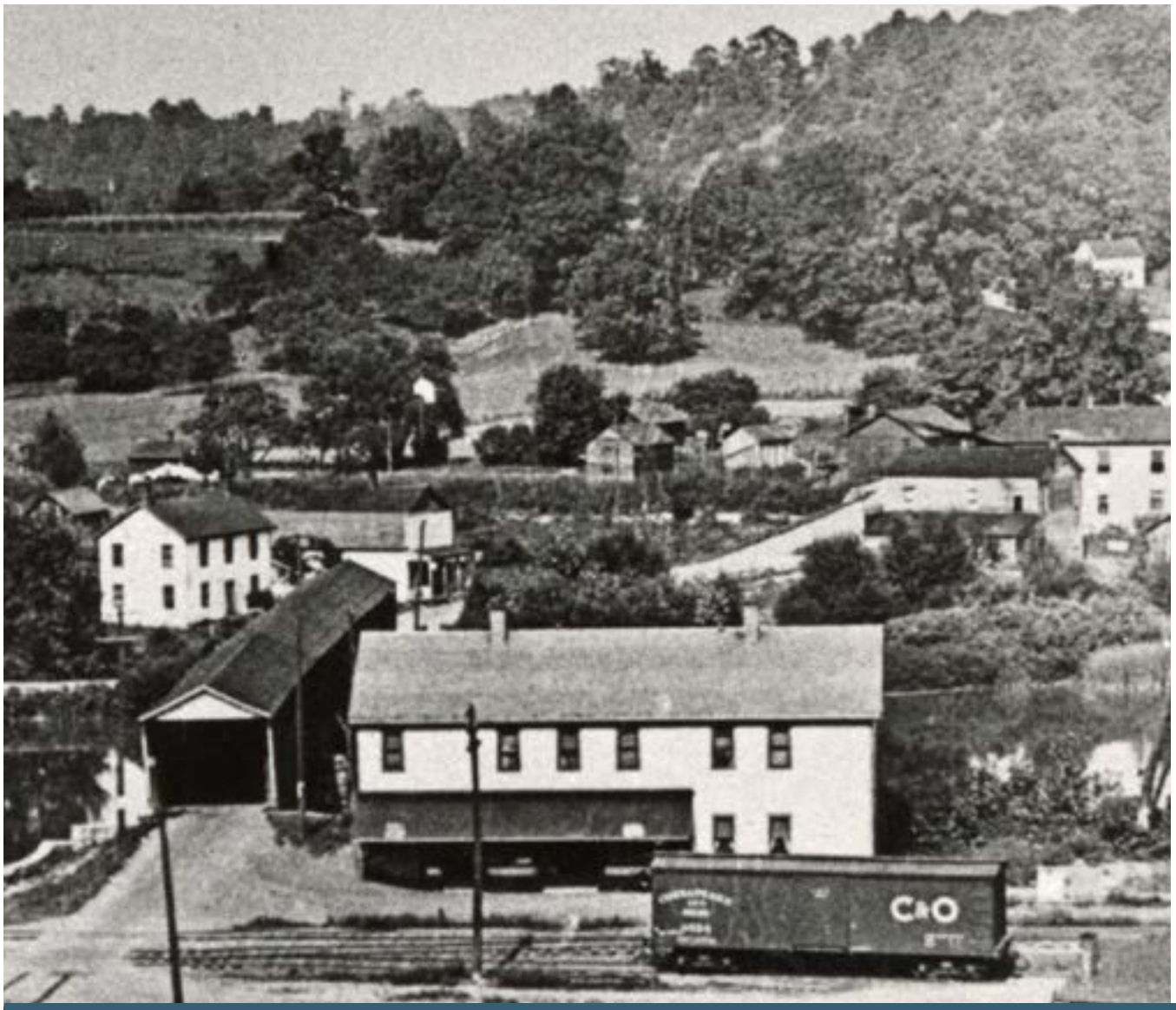
Historic American Engineering Record, Library of Congress.

- Alexander's Grist Mill, Lock 37 on Ohio & Erie Canal, South of Cleveland, Valley View, Cuyahoga County, OH, OH-58, 1981
- Ohio & Erie Canal, Links Lake Erie at Cleveland & Ohio River at Portsmouth, Peninsula, Summit County, OH, OH-59, 1986
- Brecksville-Northfield High Level Bridge, Spanning Cuyahoga River Between Brecksville and Northfield, Brecksville, OH, OH-66, 1988

Louis Baus Canal Photograph Collection, The University of Akron, University Libraries Archival Services. Accessed at https://www.uakron.edu/libraries/archives/collections/finding-aids/baus/photo.dot.

National Register of Historic Places.

- Boston Mills Historic District, Boston Township, Summit County, Ohio, National Register #92001490
- Botzum Farm, Cuyahoga Falls, Summit County, Ohio, National Register #9900127
- Brecksville-Northfield High Level Bridge, Sagamore Hills Township, Cuyahoga and Summit Counties, Ohio, National Register #86000078
- Edmund Gleason House, Valley View, Cuyahoga County, Ohio, National Register #78000377
- Jim Brown Tavern, Boston Township, Summit County, Ohio, National Register #79000300
- Lock No. 26 "Pancake Lock," Ira, Summit County, Ohio, National Register #79000302
- Lock No. 27 "Johnny Cake Lock," Everett, Summit County, Ohio, National Register #79000303
- Lock No. 28 "Deep Lock," Peninsula, Summit County, Ohio, National Register #79000304
- Lock No. 29, "Peninsula Lock" and Aqueduct, Peninsula, Summit County, Ohio, National Register #79000305
- Lock No. 30, Peninsula, Summit County, Ohio, National Register #79000306
- Lock No. 31 "Lonesome Lock," Boston Township, Summit County, Ohio, National Register #79000307
- Lock No. 32, Boston, Summit County, Ohio, National Register #79000308
- Lock No. 33 "Lost Lock," Boston Township, Summit County, Ohio, National Register #79000309
- Lock No. 34 "Red Lock," Sagamore Hills Township, Summit County, Ohio, National Register #79000310
- Lock No. 35, Sagamore Hills Township, Summit County, Ohio, National Register #79000311
- Lock No. 37 "14 Mile Lock" and Spillway, Valley View, Cuyahoga County, Ohio, National Register #79000290
- Lock No. 38 "12 Mile Lock" and Spillway, Valley View, Cuyahoga County, Ohio, National Register #79000291
- Lock No. 39 "11 Mile Lock" and Spillway, Valley View, Cuyahoga County, Ohio, National Register #79000292
- Lock Tender's House and Inn, Valley View, Cuyahoga County, Ohio, National Register #79000293
- William Knapp House, Valley View, Cuyahoga County, Ohio, National Register #79000289
- Station Road Bridge, Brecksville, Cuyahoga County, Ohio, National Register #79000312
- Stumpy Basin, Boston Township, Summit County, Ohio, National Register #79000313
- Tinkers Creek Aqueduct, Valley View, Cuyahoga County, Ohio, National Register #79000296
- Valley Railway Historic District, Cuyahoga and Summit Counties, Ohio, National Register #85001123
- Wilson Feed Mill, Valley View, Cuyahoga County, Ohio, National Register #79000298



D Cultural Landscape - FMSS Crosswalk Table



Village of Boston, undated (CVNP Photo 90z).

Appendix D: Cultural Landscape—FMSS Crosswalk Table

The primary tool that the NPS uses to implement its asset management process, for both historic and non-historic assets, is the Facility Management Software System (FMSS). FMSS supports cultural landscape preservation in the National Park system in a number of ways. It helps park staff track and plan preservation maintenance needs by identifying historic landscape features as maintained assets; allows for uploading of condition assessments that consider preservation goals and objectives; generates work orders that include stabilization, protection, repair, and reestablishment of historic landscape features; and creates job plans that describe preservation techniques, materials, and replacement strategies. FMSS also generates cost estimates that help parks obtain funding for preservation work and is integrated with the NPS Project Management Information System (PMIS).

Although the FMSS and CLR share the goal of preserving historic landscape resources, some of the terminology used differs. To help clarify the terminology used within the CLR, a terminology crosswalk table is provided in this appendix.

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Park Cultural Landscape Program & Park Facility Management Division
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CLI Features/FMSS Record Crosswalk
Cuyahoga Valley National Park
Cultural Landscape Report Ohio and Erie Canal (2022)
Cultural Landscape Inventory #500987 - Ohio and Erie Canal
Cultural Landscape Inventory Condition *(as of 2016)*: **Fair**

		Cultural Landscape Inventory			Historic Structures			FMSS								
Landscape Characteristic	CLR Feature Name	CLI Feature Name	Analysis Evaluation Features ID	Feature Contribution	HS Number	IDLCS Number	LCS Name	IN FMSS?	FMSS Action	Asset Code	Location Number	Location Name	Asset Number	Asset Description Comment	Questions/ Notes	LCS Information
Spatial Organization																
	Overall north-south linear arrangement of canal corridor			Contributing				N								
	Relationship of canal corridor to towns along its route			Contributing				N								
	Relationship of canal corridor to local roads			Contributing				N								
	Relationship of canal corridor to Cuyahoga River			Contributing				N								
Land Use																
	Recreation			Contributing				N								
	Transportation			Contributing				N								
Buildings & Structures																
	Lock 24	Lock 24	104526	Contributing	HS-102	11149	Lock #24 (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37696	SD Canal Lock 24 (Half Lock)				
	Lock 25	Lock 25	104527	Contributing	HS-103	11150	Lock #25 (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37692	SD Canal Lock 25 (Half Lock)				
	Lock 26	Lock 26	104528	Contributing	HS-104	11151	Lock #26-Pancake Lock (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37689	SD Canal Lock 26				
	Lock 27	Lock 27	104529	Contributing	HS-106	11153	Lock #27-Johnny Cake Lock (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37687	SD Canal Lock 27				
	Lock 28	Lock 28	104530	Contributing	HS-107	11154	Lock #28-Deep Lock (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37686	SD Canal Lock 28				
	Lock 29	Lock 29	104531	Contributing	HS-110	11157	Lock #29 & Aqueduct-Peninsula Lock (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37685	ND Canal Lock 29				
	Lock 30	Lock 30	104532	Contributing	HS-111	11158	Lock-#30 Feeder Lock (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37682	ND Canal Lock 30				
	Lock 31	Lock 31	104533	Contributing	HS-112	11159	Lock #31-Lonesome Lock (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37680	ND Canal Lock 31				
	Lock 32	Lock 32	105017	Contributing	HS-114	11162	Lock #32-Boston Lock (O. & E. Canal)	?	Insert CLI#	6200 - Constructed Waterway						
	Lock 33	Lock 33	105018	Contributing	HS-115	11162	Lock #33-Lost Lock (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37677	ND Canal Lock 33			LCS now calls this Wallace Lock	
	Lock 34	Lock 34	105019	Contributing	HS-116	11163	Lock #34-Red Lock (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37676	ND Canal Lock 34 (Red Lock)				
	Lock 35	Lock 35	105020	Contributing	HS-117	11164	Lock #35 (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37674	ND Canal Lock 35				
	Lock 36	Lock 36	105021	Non-Contributing	HS-118	11165	Lock #36 (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	230239	ND Canal Lock - Lock 36				
	Lock 37	Lock 37	105022	Contributing	HS-121	11168	Lock #37 (14 Mile Lock) & Spillway (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37669	ND Canal Lock 37				
	Lock 38	Lock 38	105023	Contributing	HS-126	11173	Lock #38 (12 Mile Lock) & Spillway (O. & E. Canal)	?	Insert CLI#	6200 - Constructed Waterway						
	Lock 39	Lock 39	105024	Contributing	HS-128	11175	Lock #39-11 Mile Lock & Spillway (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37651	ND Canal Lock 39				
	Furnace Run Aqueduct	Furnace Run Aqueduct	104521	Contributing	HS-105	11152	Aqueduct,Furnace Run (O. & E. Canal)	Y	Insert CLI#	2200 - Trail Bridge	37644	SD Canal Bridge - Aqueduct Hunt Farm (Tract 121-05)				
	Tinker's Creek Aqueduct	Tinker's Creek Aqueduct	105033	Contributing	HS-123	11170	Tinkers Creek Aqueduct (O. & E. Canal)	Y	Insert CLI#	6200 - Constructed Waterway	37665	ND Tinkers Creek Aqueduct				

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Landscape Characteristic	CLR Feature Name	CLI Feature Name	Analysis Evaluation Features ID	Feature Contribution	HS Number	IDLCS Number	LCS Name	IN FMSS?	FMSS Action	Asset Code	Location Number	Location Name	Asset Number	Asset Description Comment	Questions/ Notes	LCS Information
	Yellow Creek Culvert	Yellow Creek Culvert	105036	Contributing	HS-101	11148	Yellow Creek Culvert (O. & E. Canal) (Tract # 101-31)	Y	Insert CLI#	1700 - Road Bridge	37299	SD Railroad Culvert Bridge #439, 6160-006			Waste Weir, good condition in 2016.	Tract# 101-31The Yellow Creek Culvert is a semicircular arch culvert constructed of cut sandstone blocks.The culvert's east headwall is formed by voussoirs creating an arch. The keystone of the arch is plainfaced and extends slighltly beyond the voussoirs. The west headwall contains the same treatment as the east but has been extended in height, possibly during the construction of Riverview Road. Stones of the upper portion have begun to slip apart.
	Ira Road Culvert	Ira Road Culvert (Station 1383)	104525	Contributing				?	Add	1100 - Road					No 1100 location for Ira Rd. Does park own/maintain? CLI says culverts allow water under Canal Rd are on Cuyahoga County Bridge and Culvert Inventory, receive periodic inspections. Not on LCS or Shadow LCS. Maintained by Country, not	
	Furnace Run Towpath Bridge (Station 1289)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Towpath Bridge over stream (Station 1232)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Towpath Bridge over stream (Station 1195)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Arch Culvert (Station 1195)			Contributing				?	Add	2200 - Trail Bridge						
	Towpath Bridge over stream (Station 1168)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Stanford Run Culvert North or South	Stanford Creek Culvert	105028	Contributing				?	Add	2200 - Trail Bridge					Unclear which culvert this entry belongs to (North or South). Additional entry required for the second culvert	
	Towpath Bridge over stream			Non-Contributing				?	Add	2200 - Trail Bridge						
	Brandywine Creek Culvert	Brandywine Creek Culvert	104517	Contributing	HS-134	249565	O. & E. Canal: Brandywine Creek Culvert	Y	Insert CLI#	2200 - Trail Bridge	69481	ND Brandywine Creek Culvert				
	Box Culvert (Station 931)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Double Elliptical Steel Cuvert (Station 869)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Towpath Bridge over stream (Station 856)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Box Culvert (Station 785)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Towpath Bridge over feeder channel (Station 759)			Non-Contributing				?	Add	2200 - Trail Bridge						
	Sagamore Creek Culvert	Sagamore Creek Culvert (O&E Canal Station 636 Culvert)	105027	Contributing				?	Add	2200 - Trail Bridge					CLI says culverts allow water under Canal Rd are on Cuyahoga County Bridge and Culvert Inventory, receive periodic inspections. Not on LCS or Shadow LCS. Maintained by Country, not park? or ruin?	
	Box Culvert (Station 479)	Station 478+90 Culvert	105030	Contributing				?	Add	2200 - Trail Bridge					Alternate stationing 479 says culverts allow water under Canal Rd are on Cuyahoga County Bridge and Culvert Inventory, receive periodic inspections. Not on LCS or Shadow LCS. Maintained by Country, not park? or ruin?	

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	Double Box Culvert (Station 505)	Station 504+88 Culvert	105031	Contributing				?	Add	2200 - Trail Bridge					says culverts allow water under Canal Rd are on Cuyahoga County Bridge and Culvert Inventory, receive periodic inspections. Not on LCS or Shadow LCS. Maintained by Country, not park? or ruin?	
	Bolanz Flood Gate	Bolanz Flood Gate	104515	Contributing	HS-137	249631	O. & E. Canal: Bolanz Floodgate	N	Add	6200 - Constructed Waterway					No location in FMSS: Update LCS database. LCS says ruin, but stabilized in 1992. Maintenance needed?	Other Names: Tract# 121-57; Station 1305+46. Built 1826, Stabilized 1992. Current ruin. "Station 1305+46 Flood Gate is approximately 10 feet wide and is constructed of cut sandstone block. A wooden deck carries the O&E Canal Towpath Trail over the structure. The flood gate contains two parallel walls that decrease in height toward the discharge. The west side (canal side) of the flood gate contain perpendicular sandstone wing walls. the sandstone blocks contain cylindrical holes indicating that the structure was dismantled and re-laid
	Goose Pond Weir	Goose Pond Weir	104523	Contributing	HS-135	249603	O. & E. Canal: Goose Pond Weir	Y	Modify	2100 - Trail	23333	ND Towpath Pine Hill Road to Highland	191068	Abutment	From FMSS: "This is one of six abutments used to support the Goose Pond Weir bridge. This measures 24" thick x 16' long x 8' high." No LCS#, Qty 1, says installed 1904	Other name: Tract# 103-75. It's a culvert (waste weir) currently used as trail bridge. "The Goose Pond Weir is approximately 50 feet long and is constructed of poured concrete. A wooden deck carries the O&E Canal Towpath Trail over the structure. The weir contained both a flood gate on the south end and a high-water wasteway on the north end. The Goose Pond Weir contains four chambers that regulated the water level in the canal prism. The canal is partially watered in this section, but the former canal prism is visible." Update FMSS in LCS with asset numbers, not just location #
								Y	Modify	2100 - Trail	23333	ND Towpath Pine Hill Road to Highland	191071	Abutment	These are two of the six bridge abutments for the Goose Pond Weir. These are the two end abutments. They are in an L shape form. One wall is 23'L x 8'H x 2'Thick and the other wall is 12'L x 8'H x 2'Thick. This is the	
								Y	Modify	2100 - Trail	23333	ND Towpath Pine Hill Road to Highland	191074	Abutment, Concrete	"This is three of six bridge abutments for the Goose Pond Weir Bridge. These three concrete abutments measure 10'L x 8'H x 18"Thick each."	
	Hooker's Run Floodgate	Hooker's Run Floodgate	104524	Contributing	HS-136	249622	O. & E. Canal: Hooker's Run Flood Gate	?	Add	6200 - Constructed Waterway					Update LCS database (No location 37351 in FMSS)	Other name: Tract#103-75. Between Lock 35 & Hooker's Run. Refaced w/poured concrete in 1905. Desc: "The Hooker's Run Flood Gate is approximately 10 feet long and is constructed of poured concrete. A wooden deck carries the O&E Canal Towpath Trail over the structure. Hooker's Run Flood Gate regulated the water level in the canal prism near Hooker's Run creek, which fed directly into the canal, and the O&E Canal. The canal is partially watered (swampy) in this section and the former canal prism is visible."
	Sagamore Creek Flood Gate	Station 638+20 Floodgate and Wasteway	105032	Contributing	HS-130	249413	O. & E. Canal: Station 638 Floodgate	Y	Insert CLI#	6200 - Constructed Waterway	37672	ND Canal Lock Frazee Flood Control Gate			LCS # in FMSS matches	
	Sagamore Creek Waste Weir		105032	Contributing	HS-131	249475	O. & E. Canal: Station 638 Wasteway	Y	Insert CLI#	6200 - Constructed Waterway	70031	ND Canal Lock Frazee Wasteway				
	Waste Weir (Station 637)			Non-Contributing				?	Add	6200 - Constructed Waterway						
	Flood Gate (612)							?	Add	6200 - Constructed Waterway						

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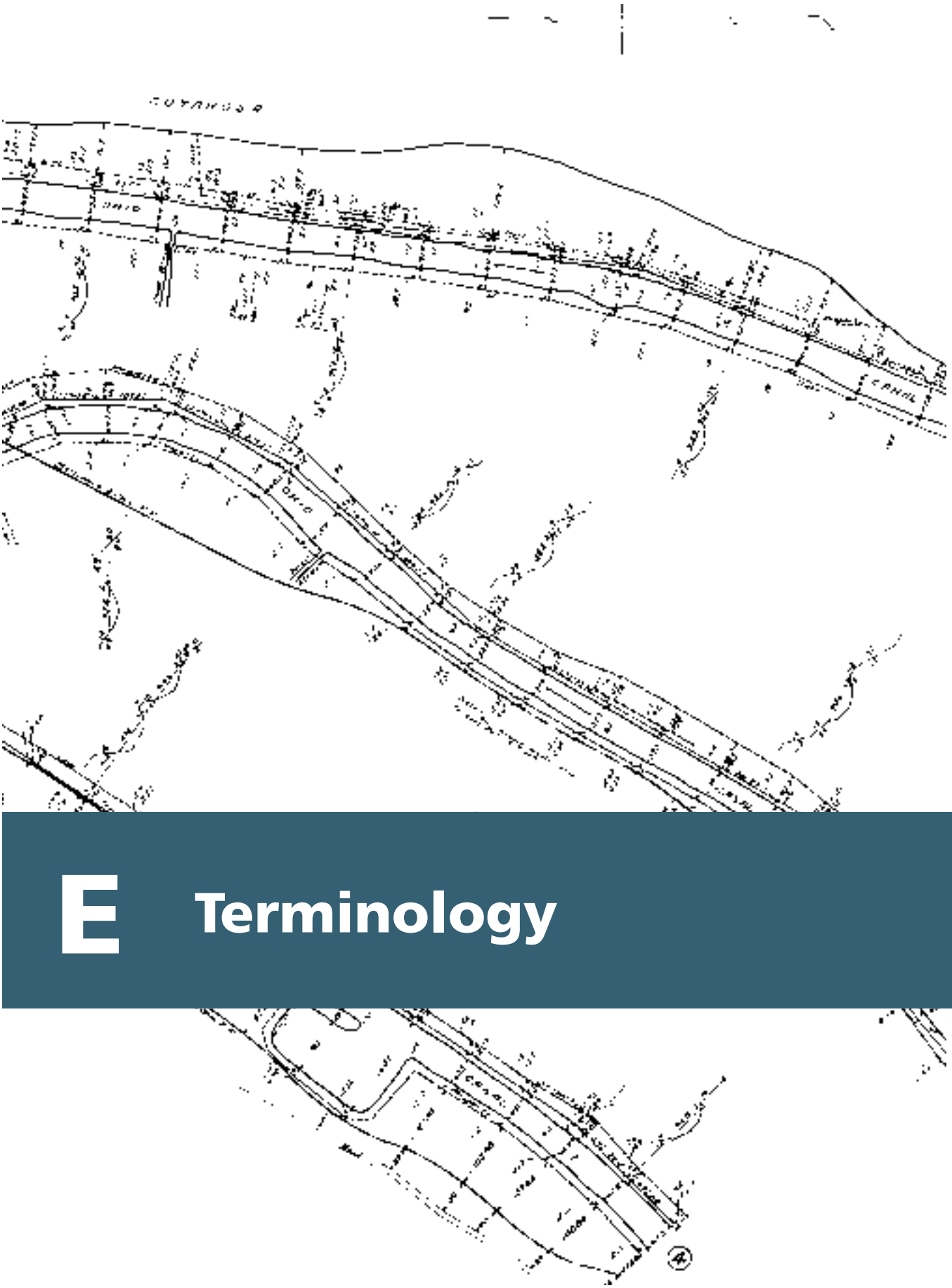
		Cultural Landscape Inventory			Historic Structures			FMSS								
Landscape Characteristic	CLR Feature Name	CLI Feature Name	Analysis Evaluation Features ID	Feature Contribution	HS Number	IDLCS Number	LCS Name	IN FMSS?	FMSS Action	Asset Code	Location Number	Location Name	Asset Number	Asset Description Comment	Questions/ Notes	LCS Information
	Waste Weir (Station 464)	Station 460+44 Wasteway	105029	Contributing				?	Add	6200 - Constructed Waterway						
	Lock 39 Spillway				HS-129	249366	O. & E. Canal: Lock #39 Wasteway	Y	Insert CLI#	6200 - Constructed Waterway	37661	ND Canal Lock 39 Wasteway			Add to CLI?	Tract 101-33. Long LCS phys desc: "This large wasteway south of Valley View was originally constructed in 1826 of rip-rap and rebuilt in 1905 with concrete. This wasteway (40') is intact and easily accessable as part of the O&E Towpath Trail through the Cuyahoga Valley National Park south of Rockside Rd. This wasteway sits just south of Lock 39 and was designed to control the water level in the Canal
		Peninsula Feeder Dam Complex	105026	Contributing	HS-138	249639	O. & E. Canal: Peninsula Feeder Complex	Y	Insert CLI#	6200 - Constructed Waterway	37683	ND Canal Lock Peninsula Feeder Gate				
		Brecksville Dam, Feeder and Head Gate	104518	Contributing	HS-133	249515	O. & E. Canal: Brecksville Feeder Channel	Y	Modify	6200 - Constructed Waterway	37673	ND Canal Lock Feeder Gate			Note that the dam has been removed. No LCS in FMSS. FMSS description: "This feeder gate is located between MP 16 and MP 17. It is just South of Route 82 bridge"	Other names: Pinery Feeder, Tract # 103-75. "The Brecksville Feeder is approximately 15 feet wide. The walls of the feeder channel are earthen. The southern end contains a head gate that connects with the Cuyahoga River. The northern end of the channel connects with
	Galley Run Mudcatcher	Galley Run Mud Catcher	104522	Contributing	HS-132	249497	O. & E. Canal: Mudcatcher at Galley Run	?	TBD							Other names: Tract# 103-75, O&E Canal Station 726. Desc: "The Galley Mudcatcher, constructed of poured concrete, is located at the western terminus of Galley Creek. Mudcatchers served as small dams where low-flowing streams were allowed to flow directly into the canal as "feeders" and to hold back silt and
	Private Bridge			Contributing				N	Add							
	Railroad Bridge Retaining Wall			Contributing				N	Add							
	Bridge over Lock 34 Wasteway			Contributing				N	Add							
	Tinkers Creek Road Bridge			Contributing				N	Add							
	Canal Prism	Canal prism and and 22-mile linear stretch within CUVA boundaries	105037	Contributing				Y							Many locations/assets	
	Basin (1194)			Contributing												
	Peninsula Basin			Contributing												
	Stumpy Basin	Stumpy Basin	105043	Contributing	HS-113	11160	Stumpy Basin (O. & E. Car	N/A	No action						Veg largely forested; full discussion beyond scope of CLI.	
	Boston Basins			Contributing				N	Add	6200 - Constructed Waterway						
	Basin (870)			Contributing				N	Add	6200 - Constructed Waterway						
	Pinery Basin			Contributing				N	Add	6200 - Constructed Waterway						
	Basin (523)			Contributing				N	Add	6200 - Constructed Waterway						
	Alexander's (Wilson's) Mill	Wilson's Mill	105035	Contributing	~~HS-120~~	~~11167~~	~~Wilsons Mill (O. & E. Canal)~~	N/A	No Action	4100 - Building	246129	ND Alexander Mill			On shadow LCS - says no legal interest, moved to shadow in 2012 b/c park does not own or retain legal interest in structure. Other name: Alexander Mill. Location NOT READY in FMSS	
	Canal Exploration Center	Lock Tender's House (Canal Visitor Center)	105025	Contributing	HS-125	11172	Lock Tenders House & Inn (O. & E. Canal)	Y	Insert CLI#	4100 - Building	23301	ND Canal Visitor Center (Tract 101-27)				
	Canal Exploration Center Train Station			Non-Contributing				?		4100 - Building						

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		Cultural Landscape Inventory			Historic Structures			FMSS								
Landscape Characteristic	CLR Feature Name	CLI Feature Name	Analysis Evaluation Features ID	Feature Contribution	HS Number	IDLCS Number	LCS Name	IN FMSS?	FMSS Action	Asset Code	Location Number	Location Name	Asset Number	Asset Description Comment	Questions/ Notes	LCS Information
	Boston Land and Manufacturing Company Store (Boston Store)	Boston Store	104516	Contributing	HS-430	14014	Boston Land and Manufacturing Company Store	Y	Insert CLI#	4100 - Building	24479	ND Boston Store (Tract 118-74)				
	Barn south of Boston Store			Contributing				N	Add	4100 - Building						
	Woodrow O. and Helen R. Johnson House			Contributing				N	Add	4100 - Building						
	Conger-Jackson House			Contributing				N	Add	4100 - Building						
	M.D. Garage			Non-Contributing				?		4100 - Building						
	Volunteer Center (Savacoal House)			Non-Contributing				?		4100 - Building						
	Comfort Station (Joseph Dzerzynski House)			Non-Contributing				?		4100 - Building						
	Moody and Thomas Grist Mill ruins			Contributing				?								
	Peninsula Train Station			Non-Contributing				?		4100 - Building						
	Peninsula Comfort Station			Non-Contributing				?		4100 - Building						
	Abraham Ulyatt House (Birth House)	Abraham Ulyatt House	104514	Non-Contributing	HS-409	13024	Abraham Ulyatt House	Y	Insert CLI#	4100 - Building	24478	ND Birth House (Tract 123-19)			outside of study area	
	Edmund Gleason House and Barn	Edmund Gleeson House and Barn	104519	Non-Contributing	HS-403	12949	Edmond Gleeson House	Y	No Action	4100 - Building	24567	ND Gleeson House (Tract123-03)			outside of study area	
					HS-404	13019	Edmond Gleeson Barn	Y	No Action	4100 - Building	24569	ND Gleeson Barn (Tract 123-03)			outside of study area	
	William Knapp House	William Knapp House	105034	Non-Contributing	HS-408	13023	William H. Knapp House	Y	No Action	4100 - Building	24667	ND Knapp House (Tract 123-54)			outside of study area	
	Frazee House	Frazee House	104520	Non-Contributing	HS-401	12947	Stephen Frazee House	Y	No Action	4100 - Building	23308	ND Frazee House (Tract 125-43)			outside of study area	
Circulation																
	Ohio & Erie Canal Towpath Trail	Towpath trail	105041	Contributing				Y	Insert CLI#	2100 - Trail	23320	ND Towpath Rockside Road to Stone Road				
								Y	Insert CLI#	2100 - Trail	23321	SD Towpath RT 303 - Riverview RR-Crossing				
								Y	Insert CLI#	2100 - Trail	23323	ND Towpath Stone Road to Hillside Road				
								Y	Insert CLI#	2100 - Trail	23324	SD Towpath Riverview RR-Crossing to Bolanz				
								Y	Insert CLI#	2100 - Trail	23326	ND Towpath Hillside Road to Tinkers Creek				
								Y	Insert CLI#	2100 - Trail	23328	SD Towpath Bolanz Road to Ira Road				
								Y	Insert CLI#	2100 - Trail	23329	ND Towpath Tinkers Creek Rd to Fitzwater Rd.				
								Y	Insert CLI#	2100 - Trail	23330	ND Towpath Fitzwater Road to Pine Hill Road				
								Y	Insert CLI#	2100 - Trail	23332	SD Towpath Ira Road to Botzum (Indian Mound)				
								Y	Insert CLI#	2100 - Trail	23333	ND Towpath Pine Hill Road to Highland				
								Y	Insert CLI#	2100 - Trail	23335	ND Towpath Highland Road to Boston Mill				
								Y	Insert CLI#	2100 - Trail	23336	ND Towpath Boston Mills to Route 303				
	Akron-Peninsula Road	Akron-Peninsula Road	105039	Contributing				N	No action						Does NPS own/maintain?	
	Route 303	Route 303	105039	Contributing				N	No action						Does NPS own/maintain?	
	Riverview Road	Riverview Road	105039	Portions Contributing				N	No action						Does NPS own/maintain?	
	Stone Road	Stone Road		Contributing				N	No action						Does NPS own/maintain?	
	Tinker's Creek Road	Tinker's Creek Road		Contributing				N	No action						Does NPS own/maintain?	
	Station Road	Station (or Northfield) Road		Contributing				N	No action						Does NPS own/maintain?	
	Vaughn Road	Vaughn Road		Contributing				N	No action						Does NPS own/maintain?	
	Hines Hill/Boston Mills Road	Boston Mills Road	105040	Contributing				N	No action						Does NPS own/maintain?	
	Bolanz Road	Bolanz Road		Contributing				N	No action						Does NPS own/maintain?	
	Ira Road	Ira Road		Contributing				N	No action						Does NPS own/maintain?	

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		Cultural Landscape Inventory					Historic Structures	FMSS								
Landscape Characteristic	**CLR Feature Name**	**CLI Feature Name**	**Analysis Evaluation Features ID**	**Feature Contribution**	**HS Number**	**IDLCS Number**	**LCS Name**	**IN FMSS?**	**FMSS Action**	**Asset Code**	**Location Number**	**Location Name**	**Asset Number**	**Asset Description Comment**	**Questions/ Notes**	**LCS Information**
	Bath Road	Bath Road		Contributing				N	No action						Does NPS own/maintain?	
	Cuyahoga Valley Scenic Railroad			Contributing				?								
	Highway 82, I-271, I-80	Highways routes 82, 271, 80	105038	Non-Contributing				N/A	No action						Assume park does not own/maintain	
Natural Systems and Topography																
	Geology			Contributing				N	No action							
	Cuyahoga River and associated tributaries			Contributing				N	No action							
	Floodplain soils			Contributing				N	No action							
	Steep valley walls and associated unstable soils			Contributing				N	No action							
	Gentle slope of canal downhill to the north			Contributing				N	No action							
	Topographic relationship between canal prism, towpath berm, and Cuyahoga River			Contributing				N	No action							
Vegetation																
	Clear corridor between canal prism and Towpath Trail surrounded by floodplain or upland forest	"Pinery Narrows"	105042	Contributing				N	No action							
	Clear corridor between canal prism and Towpath Trail surrounded by meadow or floodplain forest			Contributing				N	No action							
	Agricultural fields in Segment 2			Contributing				N	No action							
Archeological Sites																
	Sites related to Ohio & Erie Canal within the study area			Contributing											Identify individual site numbers	
Small-Scale Features																
	Overhead electrical lines along Canal Road			Contributing				N	No action						Not owned/maintained by NPS	



E Terminology

Ohio & Erie Canal near Deep Lock, 1916 (Silliman Survey).

Appendix E: Terminology

Specific terminology used in this document is provided below for reference.

BCE/CE

BCE (before current era) and CE (current era) are used as a temporal convention for cultural time periods up to CE 1000. After this date, no designation is provided.

Canal-Related Features and Structures Terminology

The following terminology is used to describe canal-related features and structures used throughout the CLR.

Aqueduct

Aqueducts carried the canal across tributaries of the Cuyahoga River. The Ohio & Erie Canal's aqueducts were constructed as wooden troughs or "trunks" supported by masonry piers and abutments. Due to their long spans, exposed locations, and the combined weight of materials, water, and canal traffic, aqueducts posed significant challenges for canal engineers and required frequent repairs and sometimes reconstruction.

Basin

A basin is a widened area along the canal prism where boats could turn around, wait to pass through a lock, or transfer passengers and cargo.

Culvert

Culverts carried small streams beneath the canal prism and towpath berm. As secondary canal structures, culverts were typically not included in the original contract specifications but addressed on a case-by-case basis, handwritten into contracts by an acting commissioner or state engineer as needed.

Dam

A dam is a barrier preventing the flow of water or of loose solid materials.

Feeder

Feeder complexes typically consisted of a V-shaped timber crib-dam across the river to create an impoundment; a set of head gates that diverted water from the river into the feeder and regulated the flow of water; the feeder channel, a wide ditch that carried water from the dam to the canal; and the waste gates, which returned excess water to the river.

Floodgate

A floodgate is a manmade channel for conducting water located within a dam or embankment that allows for controlled water flow through valves or gates.

Lock

Lift locks were used to raise and lower boats passing from one level of the canal to another.

Mudcatcher

The mudcatcher is a structure designed to capture sediment and debris behind a dam, allowing clean water to flow into the canal. Its character-defining features include the surface finish and

dimensions of the opening, the concrete guides for the gates, and the apron and side walls of the sluice.

Prism

The canal prism is a water-filled earthen channel through which boats were pulled by horses or mules walking on the historic towpath.

Towpath

A towpath is a path (as along a canal) traveled especially by draft animals towing boats.

Weir

A weir is a low dam in line with the edge of the canal that allowed for excess water to overflow out of the canal and into a waste way to return to the river.

Character-defining feature

A prominent or distinctive aspect, quality, or characteristic of a cultural landscape that contributes significantly to its physical character. Land use patterns, vegetation, furnishings, decorative details, and materials may be such features.

Contributing and non-contributing features

Contributing feature

Significant individual elements or physical characteristics remaining from the period of significance, 1825–1913.

Non-contributing feature

Individual features or physical characteristics constructed or emerging after 1913. Non-contributing features are considered compatible when they fit within the physical context of the historic period and do not impact the historic integrity of the property. Incompatible features are those that are not harmonious with the quality of the cultural landscape and, by virtue of their existence, can lessen the historic character.

Cultural landscape

A geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. The National Park Service identifies four types of cultural landscapes:

Historic site

A landscape significant for its association with a historic event, activity, or person.

Historic designed landscape

A landscape that was consciously designed or laid out by a landscape architect, master gardener, architect, engineer, or horticulturist according to design principles, or an amateur gardener working in a recognized style or tradition. The landscape may be associated with a significant person, trend, or event in landscape architecture; or illustrate an important development in the theory and practice of landscape architecture. Aesthetic values play a significant role in designed landscapes.

Historic vernacular landscape

A landscape that evolved through use by the people whose activities or occupancy shaped it. Through social or cultural attitudes of an individual, a family, or a community, the landscape reflects the physical, biological, and cultural character of everyday lives. Function plays a significant role in vernacular landscapes.

Ethnographic landscape

Area containing natural and cultural resources that associated people define as heritage resources, including plant and animal communities, geographic features, and structures.

Cultural landscape report
A cultural landscape report (CLR) documents the history and existing conditions of a cultural landscape, evaluates its significance according to the Secretary of the Interior's Standards, and provides design and management recommendations for the property.

Feature
The smallest element(s) of a cultural landscape that contributes to its significance and that can be the subject of a treatment intervention.

Historic character
The sum of all features, visual aspects, materials, and spaces associated with a cultural landscape's history. These qualities are often referred to as character-defining.

Historic significance
The recognized importance a property displays when it has been evaluated, including when it has been found to meet National Register Criteria.

Integrity
The authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's period of significance. The seven qualities of integrity as defined by the National Register program are location, design, setting, feeling, association, materials, and workmanship.

Location

Location is the place where the historic property was constructed or the place where the historic event occurred.

Design

Design is the combination of elements that create the form, plan, space, structure, and style of a property.

Setting

Setting is the physical environment of a historic property.

Feeling

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.

Association

Association is the direct link between an important historic event or person and a historic property.

Materials

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.

Workmanship

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

Landscape characteristics

The tangible and intangible characteristics of a landscape that define and characterize the landscape and that, individually and collectively, give a landscape character and aid in understanding its cultural value. The Ohio & Erie Canal cultural landscape is documented and assessed according to these landscape characteristics:

Natural systems and features

Natural systems and features are those natural aspects that have influenced the development and physical form of the study area including geology, streams, and soils.

Topography

Topography is the three-dimensional configuration of the landscape surface, characterized by slope and orientation.

Spatial organization

Spatial organization is the arrangement of elements that define and create space through the ground, vertical, and overhead planes, including topography, vegetation, natural systems, and buildings and structures.

Land use

Land use is tied to the ways that people use the landscape and is often related to patterns of spatial organization.

Views

Views present a range of vision, natural or manmade.

Circulation

Circulation includes features and materials that constitute systems of movement including vehicular routes, such as roads, and pedestrian routes, such as paths and trails.

Vegetation

Vegetation is indigenous or introduced trees, shrubs, vines, ground covers, herbaceous plants, fields, and lawns.

Buildings and structures

Buildings and structures are three-dimensional manmade constructs such as houses, sheds, and privies.

Small-scale features

Small-scale features are human-scaled elements that provide specific functions at the site. These include both historic features related to land activities such as agricultural equipment, fences, and decorative landscape elements, as well as contemporary features placed by the NPS including signs and campsite furnishings.

Archeological sites

Archeological sites are locations containing surface and subsurface remnants related to pre-contact and historic land use.

National Register of Historic Places

The official list of the nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archaeological resources.

National Historic Landmark (NHL)
A district, site, building, structure, or object of national historical significance, designated by the Secretary of the Interior under authority of the Historic Sites Act of 1935 and entered in the National Register of Historic Places. A historic site may be important enough to receive designation as an NHL if it is the location with the strongest association with a turning point or significant event in American history; is the best location to tell the story of an individual who played a significant role in the history of the United States; is an exceptional representation of a particular building or engineering method, technique, or building type in the country; or provides the potential to yield new and innovative information about the past through archaeology.

Period of significance
The span of time for which a cultural landscape attains historical significance and for which it meets National Register criteria.

Preservation
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. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Reconstruction
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.

Rehabilitation
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.

Restoration
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. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Treatment terminology
The following terminology is used to describe recommended treatment actions for the cultural landscape.[1] Definition of these terms is intended to establish a clear understanding of the treatment recommendations provided in the Overall Study Area Guidelines and Treatment Recommendations sections of this chapter.

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[1] Adapted from Birnbaum and Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*; and National Park Service, "Workflows Definitions," http://www.nps.gov/dscw/definitions.htm.

Add

Add refers to the installation of new features required for new compatible use. Additions should be planned, designed, and installed to be clearly differentiated from the contributing features, so that these features are not radically changed, obscured, damaged, or destroyed.

Avoid

Avoid is to prevent the occurrence of an unnecessary "human caused" impact to the cultural landscape within reasonable circumstances.

Conduct

Conduct is to organize and carry out.

Consider/Evaluate

Consider or evaluate is to assess if a treatment action should be undertaken. As circumstances change, the treatment action should be re-evaluated.

Coordinate

Coordinate is to bring into a common action and make equal in relative significance so that multiple actions work well together.

In-kind

In-kind refers to the method of replacing features if necessary. In-kind means to replace something in the same way, with the same materials, form, and detailing.

Maintain

Maintain refers to measures that sustain the form, integrity, and materials of features, either on a regular basis or as a non-recurring event.

Manage

Manage refers to skillfully exercising control and altering a condition to achieve a desired state over time, often with regards to vegetation or environmental conditions.

Modify

Modify refers to a minor or partial change to a feature or landscape to allow for a new use while maintaining its historical, cultural, or architectural character and/or contributing features.

Monitor

Monitor refers to a systematic observation, record, and review of the progress or quality of a feature over a period of time.

Plant

Plant refers to the placement or establishment of woody or herbaceous vegetation or seeds in the ground so that it can grow.

Prepare

Prepare refers to the steps needed to make a feature or process ready for use or consideration.

Preserve

As defined by the *US Secretary of the Interior's Standards for the Treatment of Historic Properties*, preserve refers to those measures necessary to sustain the existing form, integrity, and materials of contributing features. It includes initial stabilization work, where necessary, as well as ongoing preservation maintenance and repair of historic materials and features.

Protect

Protect refers to actions to safeguard a historic feature by defending or guarding it against further deterioration or loss. Such action is generally of temporary nature and anticipates future preservation treatment.

Provide

Provide is to make available the facilities and services necessary to support visitor experience within the cultural landscape.

Rehabilitate

As defined by the *US Secretary of the Interior's Standards for the Treatment of Historic Properties*, rehabilitate refers to the act or process of allowing compatible use through repair, alteration, or additions as long as those features that convey the historical, cultural, or architectural values are preserved.

Repair

Repair refers to those measures that are necessary to correct deteriorated, damaged, or faulty materials of features. These measures are more extensive than regular maintenance and undertake work necessary to bring a feature or area to good condition.

Remove

Remove refers to the act of eliminating a feature from its location through extraction or demolition. Such action is generally applied when non-contributing features impede the establishment of other preservation treatments.

Retain

Retain refers to allowing a feature (contributing or non-contributing) to stay in place, without intervention or active management.

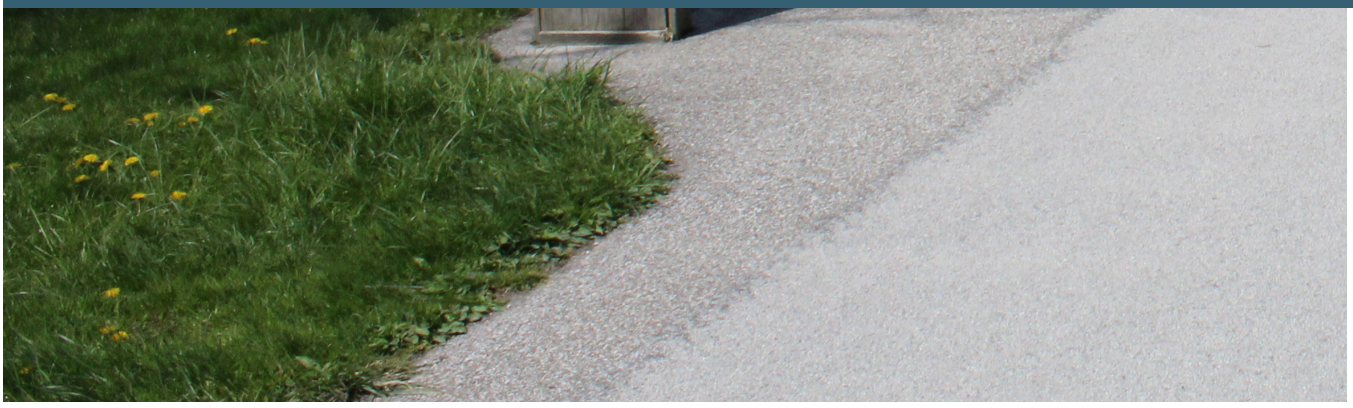
Stabilize

Stabilize refers to those measures that require more work than standard maintenance practices, and are necessary to prevent further deterioration, failure, or loss of contributing features.

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F Detail Area Class “C” Cost Estimates



Canal Exploration Center and Towpath Trail at Lock 38 (QE, 2021).

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

PROJECT COST SUMMARY

Project: Ohio and Erie Canal Cultural Landscape Report
Park: Cuyahoga Valley National Park
Alpha: CUVA
PMIS: 236937

Estimate By: Patrick Bartko, LCPE
Date: 09/26/22

Reviewed By: Reviewer
Date: Review Date

Item No.	Description	Quantity	Unit	Cost/Unit	Total	Total w/ Markups
1	Canal Exploration Center Detail Area	1	LS	$626,751	$626,751	$1,597,839
2	Boston Detail Area	1	LS	$1,298,661	$1,298,661	$3,795,424
3	Peninsula Detail Area	1	LS	$663,581	$663,581	$2,130,513
	Subtotal Direct Construction Costs				**$2,588,994**	**$7,523,776**
	Value of Government Furnished Property (GFP) Included in Direct Cost (see footnote)*				**$0**	
				Direct Cost Subtotal without GFP	**$2,588,994**	
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	0.00%			$0	
	State & Local Taxes	0.00%			$0	
	Design Contingency	20.00%			$517,799	
	Total Direct Construction Costs				**$3,106,793**	
	Standard General Conditions	10.00%			$310,679	
	Government General Conditions	7.00%			$217,475	
	Historic Preservation Factor	5.00%			$155,340	
	Subtotal NET Construction Cost				**$3,790,287**	
	Overhead	20.00%			$758,057	
	Profit	10.00%			$379,029	
	Estimated NET Construction Cost				**$4,927,373**	
	Bonds & Permits	2.00%			**$98,547**	
	Contracting Method Adjustment	15.00%			$739,106	
	Inflation Escalation	up tp 90	Months	varies	$1,758,749	
	Total Estimated NET Cost of Construction				**$7,523,776**	

	Phase 1	Phase 2	Phase 3	TOTAL
Canal Exploration Center Detail Area	$91,778	$642,669	$863,392	$1,597,839
Boston Detail Area	$1,517,177	$1,233,177	$1,045,070	$3,795,424
Peninsula Detail Area	$240,797	$809,065	$1,080,650	$2,130,513
	$1,849,753	$2,684,911	$2,989,112	$7,523,776

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

Class C Construction Cost Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 5-27-21

By using this Construction Cost Estimate template, you acknowledge you read and understand the corresponding Ins

PROJECT INFORMATION

Project:	Ohio and Erie Canal Cultural Landscape Report
Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022
Prepared By:	Patrick Bartko, LCPE
Company:	CMR
Address:	11006 Parallel Parkway, Suite 200
City, State Zip:	Kansas City, KS 66109
Phone:	913-262-6715

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

Estimate based on Ohio and Erie Canal Cultural Landscape Report - Cuyahoga Valley National Park - 95% Draft Dated June 2022. The estimate addresses the three detail areas (Canal Exploration Center, Boston, and Peninsula) identified in the CLR. Costs are provided only for capital improvements recommendations and not routine maintenance.

SOURCE OF COST DATA:

All costs are the estimators opinion of costs for the items listed.

ESTIMATE ASSUMPTIONS:

For estimating purposes the estimate for the Canal Exploration Center was based on 3 phases of construction with 6 mos lag time in between each phase

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Describe any major changes in scope of work, materials, systems, assumptions, etc. from the previous estimate version.

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

Class C Construction Cost Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 5-27-21

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PROJECT INFORMATION

Project:	Ohio and Erie Canal Cultural Landscape Report
Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	0.00%	Local wage rates and costs considered when completing the estimate
Remoteness Factor:	0.00%	Local wage rates and costs considered when completing the estimate
Wage Rate Factor:	0.00%	Local wage rates and costs considered when completing the estimate
State & Local Taxes:	0.00%	Local wage rates and costs considered when completing the estimate
Design Contingency:	20.00%	Explain & Justify
Standard. General Conditions:	10.00%	Explain & Justify
Government General Conditions:	7.00%	Explain & Justify
Historic Preservation Factor:	5.00%	Describe rationale for using this factor
Contractor Overhead:	20.00%	Overhead increase do to phasing remobilization
Contractor Profit:	10.00%	Explain & Justify
Bonds and Permits:	2.00%	Explain & Justify
Contracting Method Adjustment:	15.00%	Describe anticipated contract method and justify value used.
Annual Inflation Escalation Factor:	7.00%	Projected annual inflation rate.
Time Until Project Midpoint (Months)	24	Number of months from estimate date until the projects midpoint 10/24 of construction with start date of 10/23 and 1year construction time plus 12 mos lag time fro phasing

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

Class C Construction Cost Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 5-27-21

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PROJECT INFORMATION

Project:	Ohio and Erie Canal Cultural Landscape Report
Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022

OTHER COMMENTS:

Estimate based on Boston Area commencing 6 mos after Canal Exploration Center completion 4/26 constructing phase 1 for 4 mos starting phase 2 6 mos later with 4 mos construction time then starting phase 3 6 mos later with 4 mos construction time. Completion date 10/2028

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

PROJECT COST SUMMARY

Project: Ohio and Erie Canal Cultural Landscape Report
Park: Cuyahoga Valley National Park
Alpha: CUVA
PMIS: 236937

Estimate By: Patrick Bartko, LCPE
Date: 09/26/22

Reviewed By: Reviewer
Date: Review Date

Item No.	Description	Quantity	Unit	Cost/Unit	Total	Total w/ Markups
1	Canal Exploration Center Detail Area	1	VALUE	$626,751	$626,751	$1,597,839
	Subtotal Direct Construction Costs				**$626,751**	**$1,597,839**
	Value of Government Furnished Property (GFP) Included in Direct Cost (see footnote)*				**$0**	
				Direct Cost Subtotal without GFP	**$626,751**	
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	0.00%			$0	
	State & Local Taxes	0.00%			$0	
	Design Contingency	20.00%			$125,350	
	Total Direct Construction Costs				**$752,102**	
	Standard General Conditions	10.00%			$75,210	
	Government General Conditions	7.00%			$52,647	
	Historic Preservation Factor	5.00%			$37,605	
	Subtotal NET Construction Cost				**$917,564**	
	Overhead	20.00%			$183,513	
	Profit	10.00%			$91,756	
	Estimated NET Construction Cost				**$1,192,833**	
	Bonds & Permits	2.00%			**$23,857**	
	Contracting Method Adjustment	15.00%			$178,925	
	Inflation Escalation	24	Months	7.00%	$202,225	
	Total Estimated NET Cost of Construction				**$1,597,839**	

Phase 1	$91,778
Phase 2	$642,669
Phase 3	$863,392

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Ohio and Erie Canal Cultural Landscape Report**	**Estimate By:**	Patrick Bartko, LCPE
Park:	**Cuyahoga Valley National Park**	**Date:**	09/26/22
Park Alpha:	**CUVA**	**Reviewed By:**	Reviewer
PMIS Number:	**236937**	**Date:**	Review Date
Summary Item 1	**Canal Exploration Center Detail Area**	**Total Cost:**	$626,751

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G20		**SITE IMPROVEMENTS**					
Canal Exploration Center Detail Area Site Program							
2	C1	Consider interpreting a missing historic structure south of the Canal Exploration Center building using an on-grade feature. Conduct archeological investigations and historical research to confirm the feature's location, age, and significance before adding an interpretive element.	These costs are addressed in other recommendations.				
2	C2	Add program space and interpretive features consistent with the detail area's existing boxes and barrels graphic identity on the west side of the Canal Exploration Center building. Consider designing the program space as an informal amphitheater. Refer to Task C11 and Task C16.	These costs are addressed in other recommendations.				
2	C3	Add picnic and outdoor program space southwest of the existing parking area. Link the new program space to trails along the river. Refer to Task C13, Task C15, and Task C27.	These costs are addressed in other recommendations.				
2	C4	Add outdoor program space (meadow) east of the railroad station by expanding mown lawnareas adjacent to the station. Consider expanding programming to the train station structure.	Not included in cost estimate. Estimate does not include routine maintenance.				
2	C5	Consider interpreting canal boat use and/or scale within the detail area.	Not included in cost estimate. Will require selection of option.				
Canal Exploration Center Detail Area Circulation							
2	C6	Replace the existing Towpath Trail surface with chip seal where the trail follows the historic alignment of the towpath. Refer to Overall Study Area Circulation Treatment Types.	6950	SF	$ 3.50	$24,325	
2	C7a	Add an 5' wide chip seal walkway with an irregular edge on the east side of Lock 38.	575	SF	$ 3.50	$2,013	
2	C7b	Establish 6-18" tall native grasses between the new walkway and the lock. 3	230	SF	$ 3.00	$690	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Ohio and Erie Canal Cultural Landscape Report**	**Estimate By:**	Patrick Bartko, LCPE
Park:	**Cuyahoga Valley National Park**	**Date:**	09/26/22
Park Alpha:	**CUVA**	**Reviewed By:**	Reviewer
PMIS Number:	**236937**	**Date:**	Review Date
Summary Item 1	**Canal Exploration Center Detail Area**	**Total Cost:**	$626,751

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
3	C8a	Add a new portion of the Towpath Trail connecting existing segments of the trail under Hillside Road.	2500	SF	$ 3.50	$8,750	
3	C8b	Add Retaining wall	250	LF	$ 360.00	$90,000	
3	C9	Remove the segment of Towpath Trail extending south from Hillside Road to Lock 38. Maintain a stabilized grass or gravel surface along this route for park vehicle access to the Towpath Trailand emergency	640	SF	$ 3.00	$1,920	
2	C10	Replace the walkway along the east side of the CEC to increase space for lock demonstrations. Install a 14' wide chip seal surface between the Towpath Trail and the building. Design the surface to comply with ABAAS with an irregular edge that evokes the historic character of the detail area	970	SF	$ 10.00	$9,700	
2	C11a	Remove existing walkways and stairs between the parking area and Canal Exploration Center building	1929	Unit	$ 1.50	$2,894	
2	C11b	Add a new 53' by 20' concrete paved dropoff area on the east end of the parking area.	1060	SF	$ 15.00	$15,900	
2	C11c	Add a new 5' wide concrete walkway between the dropoff area and the Towpath Trail south of the Canal Exploration Center Building. Design the surface to comply with ABAAS and incorporate a universally accessible picnic area into the hardscape	675	SF	$ 8.50	$5,738	
2	C11d	Add a new 5' wide concrete walkway to the lower level of the Canal Exploration Center. Design the surface to comply with ABAAS	750	SF	$ 8.50	$6,375	
3	C12	Add an 8' wide concrete bypass route for bicycle traffic around the west side of the Canal Exploration Center.	3720	SF	$ 8.50	$31,620	
2	C13	Add a 5' wide concrete walkway along the south side of the parking area between the proposed dropoff area (Task C11) and proposed covered pavilion (Task C27)	1850	SF	$ 8.50	$15,725	
2	C14	Maintain the existing pedestrian bridge	45	SF	$ 15.00	$675	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Ohio and Erie Canal Cultural Landscape Report**	**Estimate By:**	Patrick Bartko, LCPE
Park:	**Cuyahoga Valley National Park**	**Date:**	09/26/22
Park Alpha:	**CUVA**	**Reviewed By:**	Reviewer
PMIS Number:	**236937**	**Date:**	Review Date
Summary Item 1	**Canal Exploration Center Detail Area**	**Total Cost:**	$626,751

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
2	C15	Formalize social trails along the riverbank in locations that minimize erosion and provide access for fishing. Establish bare earth or mown grass trails.	405	LF	$ 5.00	$2,025	
2	C16	Add a chip seal-paved program area on the west side of the walkway to the lower level of the Canal Exploration Center. Design the surface to comply with ABAAS and provide an irregular edge.	3150	SF	$ 10.00	$31,500	
Canal Exploration Center Detail Area Vegetation							
2	C17	Remove woody understory vegetation between the lock and spillway. Retain canopy trees and low native herbaceous vegetation.	4200	SF	$ 1.50	$6,300	
2	C18	Add shade trees in informal groupings north of the Canal Exploration Center to screen views of the building's HVAC unit.	6	EA	$ 750.00	$4,500	
2	C19	Add mid-height native grasses and herbaceous vegetation along the north and west sides of the Canal Exploration Center building.	987	SY	$ 5.00	$4,933	
2	C20	Add irregularly spaced shade trees along the Towpath Trail and open lawn areas south and west of the Canal Exploration Center building.	10	EA	$ 750.00	$7,500	
2	C21	Replace invasive understory vegetation with low height native vegetation along both sides of the riverbank to increase visibility of the train station and improve ecological community health.	4659	SY	$ 5.00	$23,294	
2	C22	Add shade trees in informal groupings along the pedestrian route between the train station and parking area.	24	EA	$ 750.00	$18,000	
Canal Exploration Center Detail Area Buildings and Structures							
1	C23	Preserve contributing aspects and features of the Canal Exploration Center building and continue to use the building for visitor services, exhibits, and park administration.	Costs not included in estimate				

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Ohio and Erie Canal Cultural Landscape Report**	**Estimate By:**	Patrick Bartko, LCPE
Park:	**Cuyahoga Valley National Park**	**Date:**	09/26/22
Park Alpha:	**CUVA**	**Reviewed By:**	Reviewer
PMIS Number:	**236937**	**Date:**	Review Date
Summary Item 1	**Canal Exploration Center Detail Area**	**Total Cost:**	$626,751

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
1	C24	Preserve Lock 38 and maintain in good condition for lock demonstrations. Maintain gates to protect the historic structure.	Costs not included in estimate				
1	C25	Conduct archeological investigations before stabilizing the historic canal structures.	2	EA	$ 15,000.00	$30,000	
1	C26	Maintain the Comfort Station	Costs not included in estimate				
2	C27	Consider adding a 20' by 20' outdoor covered pavilion southwest of the parking area. Design the pavilion to be a simple wood and stone structure compatible with the vernacular character of the landscape	400	SF	$ 175.00	$70,000	
Canal Exploration Center Detail Area Small-Scale Features							
1	C28a	Move KIOSK	1	EA	$ 1,500.00	$1,500	
1	C28a	Move Barrel Feature Sign	3	EA	$ 1,500.00	$4,500	
3	C29	Coordinate with local utilities to bury the overhead lines that impact the view between the Canal Exploration Center building and Canal Road.	635	LF	$ 325.00	$206,375	
			0	Unit	$ -	$0	
		SUBTOTAL SITE IMPROVEMENTS	**1**	**VALUE**	**$ 626,751.28**	**$626,751**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - Canal Exploration Center Detail Area		**1**	**VALUE**	**$ 626,751.28**	**$626,751**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

Class C Construction Cost Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 5-27-21

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PROJECT INFORMATION

Project:	Ohio and Erie Canal Cultural Landscape Report
Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022
Prepared By:	Patrick Bartko, LCPE
Company:	CMR
Address:	11006 Parallel Parkway, Suite 200
City, State Zip:	Kansas City, KS 66109
Phone:	913-262-6715

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

Estimate based on Ohio and Erie Canal Cultural Landscape Report - Cuyahoga Valley National Park - 95% Draft Dated June 2022. The estimate addresses the three detail areas (Canal Exploration Center, Boston, and Peninsula) identified in the CLR. Costs are provided only for capital improvements recommendations and not routine maintenance.

SOURCE OF COST DATA:

All costs are the estimators opinion of costs for the items listed.

ESTIMATE ASSUMPTIONS:

For estimating purposes the estimate for the Boston Area was based on starting 6 mos after Canal Exploration Center having 3 phases of construction with 6 mos lag time in between each phase

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Describe any major changes in scope of work, materials, systems, assumptions, etc. from the previous estimate version.

United States Department of the Interior
National Park Service
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PROJECT INFORMATION

Project:	Ohio and Erie Canal Cultural Landscape Report
Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	0.00%	Local wage rates and costs considered when completing the estimate
Remoteness Factor:	0.00%	Local wage rates and costs considered when completing the estimate
Wage Rate Factor:	0.00%	Local wage rates and costs considered when completing the estimate
State & Local Taxes:	0.00%	Local wage rates and costs considered when completing the estimate
Design Contingency:	20.00%	Explain & Justify
Standard. General Conditions:	10.00%	Explain & Justify
Government General Conditions:	7.00%	Explain & Justify
Historic Preservation Factor:	5.00%	Describe rationale for using this factor
Contractor Overhead:	20.00%	Overhead increase do to phasing remobilization
Contractor Profit:	10.00%	Explain & Justify
Bonds and Permits:	2.00%	Explain & Justify
Contracting Method Adjustment:	15.00%	Describe anticipated contract method and justify value used.
Annual Inflation Escalation Factor:	6.00%	Projected annual inflation rate. Anticipating rate to begein to return to normal
Time Until Project Midpoint (Months)	56	Number of months from estimate date until the projects midpoint 6/27 of construction with start date of 4/26 and 1.5 year construction time plus 12 mos lag time for phasing

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

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PROJECT INFORMATION

Project:	Ohio and Erie Canal Cultural Landscape Report
Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022

OTHER COMMENTS:

Estimate based on Boston Area commencing 6 mos after Canal Exploration Center completion 4/26 constructing phase 1 for 4 mos starting phase 2 6 mos later with 4 mos construction time then starting phase 3 6 mos later with 4 mos construction time. Completion date 10/28

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

PROJECT COST SUMMARY

Project: Ohio and Erie Canal Cultural Landscape Report
Park: Cuyahoga Valley National Park
Alpha: CUVA
PMIS: 236937

Estimate By: Patrick Bartko, LCPE
Date: 09/26/22

Reviewed By: Reviewer
Date: Review Date

Item No.	Description	Quantity	Unit	Cost/Unit	Total	Total w/ Markups
1	Boston Area Detail	1	VALUE	$1,298,661	$1,298,661	$3,795,424
	Subtotal Direct Construction Costs				**$1,298,661**	**$3,795,424**
	Value of Government Furnished Property (GFP) Included in Direct Cost (see footnote)*				**$0**	
				Direct Cost Subtotal without GFP	**$1,298,661**	
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	0.00%			$0	
	State & Local Taxes	0.00%			$0	
	Design Contingency	20.00%			$259,732	
	Total Direct Construction Costs				**$1,558,394**	
	Standard General Conditions	10.00%			$155,839	
	Government General Conditions	7.00%			$109,088	
	Historic Preservation Factor	5.00%			$77,920	
	Subtotal NET Construction Cost				**$1,901,240**	
	Overhead	20.00%			$380,248	
	Profit	10.00%			$190,124	
	Estimated NET Construction Cost				**$2,471,613**	
	Bonds & Permits	2.00%			**$49,432**	
	Contracting Method Adjustment	15.00%			$370,742	
	Inflation Escalation	56	Months	6.00%	$903,637	
	Total Estimated NET Cost of Construction				**$3,795,424**	

Phase 1	$1,517,177
Phase 2	$1,233,177
Phase 3	$1,045,070

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project: Ohio and Erie Canal Cultural Landscape Report
Park: Cuyahoga Valley National Park
Park Alpha: CUVA
PMIS Number: 236937

Estimate By: Patrick Bartko, LCPE
Date: 09/26/22
Reviewed By: Reviewer
Date: Review Date

Summary Item 2 0 **Total Cost:** Total Cost

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G20		**SITE IMPROVEMENTS**					
Boston Detail Area Site Program							
2	B1	Interpret missing historic structures, boat yard, and dry dock north of Boston Mills Road using on-grade features. Refer to Overall Study Area Visitor Experience Guidelines and the Boston Detail Area Landscape Analysis (see chapter 3, page 3.192).	675	LF	$ 150.00	$101,250	
3	B2	Interpret the historic warehouse formerly attached to the south side of the Boston Store using an on-grade feature. Refer to Overall Study Area Visitor Experience Guidelines.	132	LF	$ 150.00	$19,800	
3	B3	Consider interpreting the Commercial Hotel on the MD Garage site using an on-grade feature or wayside. Refer to Overall Study Area Visitor Experience Guidelines.	180	LF	$ 150.00	$27,000	
Boston Detail Area Circulation							
3	B4b	Remove the existing parking area southwest of the Boston Store.	20155	SF	$ 3.15	$63,488	
3	B4c	Add 7 asphalt-paved limited mobility parking spaces along the east side of Cuyahoga Street. Retain the portion of Cuyahoga Street that accesses the parking spaces	524	SY	$ 40.00	$20,942	
3	B5	Add an 8' wide concrete pedestrian walkway between the limited mobility parking and the Towpath Trail following the historic routes of Cuyahoga Street and South Street.	3400	SF	$ 8.50	$28,900	
3	B6a	Remove existing non-contributing walkways between the Comfort Station, Boston Store, and Towpath Trail.	3740	SF	$ 1.50	$5,610	
3	B6b	Add a concrete walkway along the historic route of the alley between Cuyahoga Street and the Boston Store.	4416	SF	$ 8.50	$37,536	
3	B6c	Replace driveway at the MD Garage with a new asphalt surface	527	SY	$ 40.00	$21,080	

United States Department of the Interior
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LINE ITEM COST SUMMARY

Project: Ohio and Erie Canal Cultural Landscape Report
Park: Cuyahoga Valley National Park
Park Alpha: CUVA
PMIS Number: 236937

Estimate By: Patrick Bartko, LCPE
Date: 09/26/22
Reviewed By: Reviewer
Date: Review Date

Summary Item 2 **0** **Total Cost:** Total Cost

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
3	B6d	Add a 5' wide concrete walkway connecting between the Comfort Station and new walkway.	100	SF	$ 8.50	$850	
1	B7	Maintain the mown grass trail on the west side of the canal prism north of Boston Mills Road to access proposed interpretive features.	Costs not included in estimate				
1	B8	Maintain the pedestrian bridge across Lock 32 and the mown grass trail between the lock and waste weir.	1	LS	$ 2,500.00	$2,500	
2	B9	Replace the existing Towpath Trail surface with chip seal.	22750	SF	$ 3.50	$79,625	
2	B10	Add sidewalks compatible with the historic character of the landscape along Boston Mills 30 Road and Stanford Road.	11150	SF	$ 3.50	$39,025	
2	B11	Add a new mown grass trail on the east side of the canal prism connecting the waste weir, proposed interpretive features north of Boston Mills Road, and proposed sidewalk along Stanford Road.	580	LF	$ -	$0	
3	B12a	Gravel Parking Area and road	19680	SF	$ 2.25	$44,280	
3	B12b	Visually screen with tree and shrub plantings	6200	SF	$ 3.00	$18,600	
Boston Detail Area Vegetation and Views							
3	B13	Selectively remove or prune woody understory vegetation (less than 6" diameter) to provide views from the picnic area to the river.	3000	SF	$ 1.50	$4,500	
1	B14	Work with the community to determine if it is appropriate to manage vegetation to reestablish a view between Towpath Trail and cemetery.	Costs not included in estimate				
2	B15	Remove woody understory vegetation (less than 6" diameter) within the canal prism and between the canal prism and Sanford Road.	18700	SF	$ 1.50	$28,050	
3	B16	Maintain lawn south of Boston Mills Road and east of the canal prism to provide open program space.	Costs not included in estimate				
Boston Detail Area Buildings and Structures							

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LINE ITEM COST SUMMARY

Project: Ohio and Erie Canal Cultural Landscape Report
Park: Cuyahoga Valley National Park
Park Alpha: CUVA
PMIS Number: 236937

Estimate By: Patrick Bartko, LCPE
Date: 09/26/22
Reviewed By: Reviewer
Date: Review Date

Summary Item 2 0 **Total Cost:** Total Cost

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
1	B17	Engage an architectural conservator and structural engineer to repair the structure.	1	LS	$ 75,000.00	$75,000	
1	B17a	Stabilize and preserve Lock 32, the spillway, and the waste weir. Walls	180	LF	$ 2,365.00	$425,700	
3	B18	Costs for Study for diverting stormwater runoff into canal prism	1	LS	$ 65,000.00	$65,000	
2	B19	Consider representing the missing bridge over the canal prism at Boston Mills Road	58	LF	$ 3,000.00	$174,000	
1	B20	Preserve buildings that contribute to the canal corridor and Boston Mills Historic District.	Costs not included in estimate				
1	B21	Maintain the MD Garage and Dzerzyski House (comfort station) for park use	Costs not included in estimate				
Boston Detail Area Small-Scale Features							
1	B22	Replace Wood Fence	245	LF	$ 65.00	$15,925	
1	B23	fences, and furnishings) require replacement, install features that are compatible with the historic character of the landscape	Costs not included in estimate				
		SUBTOTAL SITE IMPROVEMENTS	**1**	**LS**	**$ 1,298,661**	**$1,298,661**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - 0		**1**	**LS**	**$ 1,298,661**	**$1,298,661**	

United States Department of the Interior
National Park Service
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BASIS OF ESTIMATE

Class C Construction Cost Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 5-27-21

By using this Construction Cost Estimate template, you acknowledge you read and understand the corresponding Ins

PROJECT INFORMATION

Project:	Ohio and Erie Canal Cultural Landscape Report
Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022
Prepared By:	Patrick Bartko, LCPE
Company:	CMR
Address:	11006 Parallel Parkway, Suite 200
City, State Zip:	Kansas City, KS 66109
Phone:	913-262-6715

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

Estimate based on Ohio and Erie Canal Cultural Landscape Report - Cuyahoga Valley National Park - 95% Draft Dated June 2022. The estimate addresses the three detail areas (Canal Exploration Center, Boston, and Peninsula) identified in the CLR. Costs are provided only for capital improvements recommendations and not routine maintenance.

SOURCE OF COST DATA:

All costs are the estimators opinion of costs for the items listed.

ESTIMATE ASSUMPTIONS:

For estimating purposes the estimate for the Peninsula Area was based on starting 6 mos after Boston Area completion having 3 phases of construction with 6 mos lag time in between each phase

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Describe any major changes in scope of work, materials, systems, assumptions, etc. from the previous estimate version.

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PROJECT INFORMATION

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Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	0.00%	Local wage rates and costs considered when completing the estimate
Remoteness Factor:	0.00%	Local wage rates and costs considered when completing the estimate
Wage Rate Factor:	0.00%	Local wage rates and costs considered when completing the estimate
State & Local Taxes:	0.00%	Local wage rates and costs considered when completing the estimate
Design Contingency:	20.00%	Explain & Justify
Standard. General Conditions:	10.00%	Explain & Justify
Government General Conditions:	7.00%	Explain & Justify
Historic Preservation Factor:	5.00%	Describe rationale for using this factor
Contractor Overhead:	20.00%	Overhead increase do to phasing remobilization
Contractor Profit:	10.00%	Explain & Justify
Bonds and Permits:	2.00%	Explain & Justify
Contracting Method Adjustment:	15.00%	Describe anticipated contract method and justify value used.
Annual Inflation Escalation Factor:	5.00%	Projected annual inflation rate. Anticipating rate to begin to return to normal
Time Until Project Midpoint (Months)	90	Number of months from estimate date until the projects midpoint 6/27 of construction with start date of 4/26 and 1.5 year construction time plus 12 mos lag time for phasing

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BASIS OF ESTIMATE

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PROJECT INFORMATION

Project:	Ohio and Erie Canal Cultural Landscape Report
Park:	Cuyahoga Valley National Park
Park Alpha:	CUVA
PMIS Number:	236937
Estimate Date:	9/26/2022

OTHER COMMENTS:

Estimate based on Penninsula Area commencing 6 mos after Boston completion 10/28 constructing phase 1 for 4 mos starting phase 2 6 mos later with 4 mos construction time then starting phase 3 6 mos later with 4 mos construction time. Completion date 4/2031

United States Department of the Interior
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PROJECT COST SUMMARY

Project: Ohio and Erie Canal Cultural Landscape Report
Park: Cuyahoga Valley National Park
Alpha: CUVA
PMIS: 236937

Estimate By: Patrick Bartko, LCPE
Date: 09/26/22

Reviewed By: Reviewer
Date: Review Date

Item No.	Description	Quantity	Unit	Cost/Unit	Total	Total w/ Markups
1	Peninsula Area	1	LS	$663,581	$663,581	$2,130,513
	Subtotal Direct Construction Costs				**$663,581**	**$2,130,513**
	Value of Government Furnished Property (GFP) Included in Direct Cost (see footnote)*				**$0**	
				Direct Cost Subtotal without GFP	**$663,581**	
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	0.00%			$0	
	State & Local Taxes	0.00%			$0	
	Design Contingency	20.00%			$132,716	
	Total Direct Construction Costs				**$796,297**	
	Standard General Conditions	10.00%			$79,630	
	Government General Conditions	7.00%			$55,741	
	Historic Preservation Factor	5.00%			$39,815	
	Subtotal NET Construction Cost				**$971,483**	
	Overhead	20.00%			$194,297	
	Profit	10.00%			$97,148	
	Estimated NET Construction Cost				**$1,262,928**	
	Bonds & Permits	2.00%			**$25,259**	
	Contracting Method Adjustment	15.00%			$189,439	
	Inflation Escalation	90	Months	5.00%	$652,887	
	Total Estimated NET Cost of Construction				**$2,130,513**	

Phase 1	$240,797
Phase 2	$809,065
Phase 3	$1,080,650

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Department of the Interior
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Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project: Ohio and Erie Canal Cultural Landscape Report
Park: Cuyahoga Valley National Park
Park Alpha: CUVA
PMIS Number: 236937

Estimate By: Patrick Bartko, LCPE
Date: 09/26/22
Reviewed By: Reviewer
Date: Review Date

Summary Item

Total Cost: $663,581

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G20		**SITE IMPROVEMENTS**					
Peninsula Detail Area Site Program							
3	P1	Reestablish a circulation route in the historic location of the aqueduct to provide an additional route through the detail area. Refer to Tasks P11 through P15.	These costs are addressed in other recommendations.				
2	P2	Conduct a condition assessment of the Mill ruins site	1	EA	$ 45,000.00	$45,000	
3	P3	Modify the vegetation and/or grade to visualize the canal prism south of the river. Refer to Tasks P22, P23, and P28.	These costs are addressed in other recommendations.				
1	P4	Continue to maintain the mown gathering space and associated benches along the east side of the Towpath Trail on the south side of the river	Costs not included in estimate				
Peninsula Detail Area Circulation							
2	P5	Replace the existing Towpath Trail surface north and south of Lock 29 with chip seal.	3890	SF	$ 10.00	$38,900	
2	P6a	Remove the existing asphalt trailhead pavement	412	SF	$ 5.00	$2,060	
2	P6b	Add a 40' by 15' chip seal paved trailhead at the northwest corner of the parking area.	600	SF	$ 10.00	$6,000	
2	P6c	Move the existing kiosk to the new trailhead location	1	EA	$ 1,500.00	$1,500	
2	P7a	Remove the existing walkway between the trailhead and Towpath Trail.	480	SF	$ 3.15	$1,512	
2	P7b	Add an 8' wide chip seal paved walkway between the new trailhead and the Towpath Trail.	960	SF	$ 10.00	$9,600	
2	P7c	Incorporate a low-profile box culvert where the new walkway crosses the prism	1	EA	$ 6,500.00	$6,500	
2	P8	Continue to maintain the parking area in its existing location.	Costs not included in estimate				
2	P9a	Add an 8' wide concrete walkway on the south side of the existing parking area.	2880	SF	$ 8.50	$24,480	
2	P9b	Add accessible benches along the walkway for river viewing.	2	EA	$ 850.00	$1,700	

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Estimate By: Patrick Bartko, LCPE
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Summary Item

Total Cost: $663,581

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
2	P10	Remove the stairs between the trailhead and upper portion of Lock 29 and revegetate the slope with riparian species consistent with the surrounding vegetation community	384	SF	$ 1.50	$576	
2	P11a	Remove existing asphalt and limestone fines pavement between the two pedestrian bridges.	1992	SF	$ 1.50	$2,988	
2	P11b	Install a trail surface consistent with the Towpath Trail within the historic extent of the paved area adjacent to the lock	2572	SF	$ 10.00	$25,720	
3	P12	Construct a ramp through the center of Lock 29.	1000	SF	$ 18.00	$18,000	
3	P13	Construct a pedestrian bridge in the historic location of the aqueduct, west of the existing pedestrian bridge.	800	SF	$ 250.00	$200,000	
3	P14	Add an 8'-wide on-grade chip seal route connecting between the new bridge and Towpath Trail south of the river.	976	SF	$ 10.00	$9,760	
3	P15a	Remove asphalt path	1200	SF	$ 1.50	$1,800	
3	P15b	Add an 8'-wide on-grade chip seal route connecting between the new ramp and Towpath Trail north of Lock 29.	840	SF	$ 10.00	$8,400	
3	P16	Continue to maintain the existing pedestrian bridge over Lock 29	Costs not included in estimate				
3	P17	Retain the existing wayside bump-out on the west side of Lock 29	160	SF	$ 3.50	$560	
3	P18a	Remove pavement	550	SF	$ 10.00	$5,500	
3	P18b	Connector Trail	200	SF	$ 3.50	$700	
2	P19	Remove pavement	1275	SF	$ 10.00	$12,750	
2	P19	Add sidewalks	1960	SF	$ 8.50	$16,660	
3	P20a	Speedbumps	2	EA	$ 1,500.00	$3,000	
3	P20b	Signs	2	EA	$ 150.00	$300	
Peninsula Detail Area Vegetation							
3	P21	Selectively remove woody understory vegetation to improve visibility of canal prism on the north side of the river.	3530	SF	$ 1.50	$5,295	

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Park:	**Cuyahoga Valley National Park**	**Date:**	09/26/22
Park Alpha:	**CUVA**	**Reviewed By:**	Reviewer
PMIS Number:	**236937**	**Date:**	Review Date

Summary Item **Total Cost:** $663,581

Uniformat II WBS Code		Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
3	P22	Add riparian forest vegetation between the parking area and prism to visually delineate the historic location of the prism.	7502	SF	$ 3.00	$22,506	
3	P23	Towpath Trail and south of the river to obscure views of	Costs not included in estimate				
3	P24	Establish low native herbaceous vegetation within the historic location of the prism and maintain through annual mowing or periodic prescribed burns.	610	SY	$ 5.00	$3,052	
Peninsula Detail Area Buildings and Structures							
1	P25	Maintain the existing comfort station in good condition.	Costs not included in estimate				
1	P26	Work with the building owner to maintain the existing railroad station in good condition.	Costs not included in estimate				
1	P27	Engage an architectural conservator and structural engineer to repair the structure.	1	EA	$ 75,000.00	$75,000	
3	P28	Construct Stone Retaining Wall	246	LF	$ 210.00	$51,660	
3	P28	Regrade	6052	SF	$ 1.00	$6,052	
2	P29	Consider stabilizing the slope on the east side of the river with a soldier pile retaining wall	2670	SF	$ 15.00	$40,050	
Peninsula Detail Area Buildings and Structures							
2	P30	Work with the Cuyahoga Valley Scenic Railroad to add a fence or low stone or concrete barrier between the railroad tracks and the pedestrian walkway on the east side of the river	300	LF	$ 45.00	$13,500	
2	P31	Consider adding interpretive materials to enhance visitor understanding of the missing iron bridge	1	EA	$ 2,500.00	$2,500	
		SUBTOTAL SITE IMPROVEMENTS	**1**	**LS**	**$ 663,581**	**$663,581**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Ohio and Erie Canal Cultural Landscape Report**	**Estimate By:**	Patrick Bartko, LCPE
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PMIS Number:	**236937**	**Date:**	Review Date

Summary Item **Total Cost:** $663,581

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
TOTAL COST - 0		**1**	**LS**	**$ 663,581**	**$663,581**	

National Park Service
U.S. Department of the Interior

Cuyahoga Valley National Park
Summit and Cuyahoga Counties, Ohio