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BOROUGH OF COLUMBIA  
APRIL 2019

# COLUMBIA RIVER PARK PHASE III MASTER SITE DEVELOPMENT PLAN



ENVIRONMENTAL PLANNING & DESIGN, LLC  
H. F. LENZ COMPANY  
CHRISTINE DAVIS CONSULTANTS, INC.





# TABLE OF CONTENTS



Acknowledgments	iii
Preface	v
Executive Summary	vii
Part 1 - Purpose and Process	1
Part 2 - Place	3
Part 3 - Community Engagement	22
Part 4 - Design	26
Appendices and Supplements	65

## List of Figures

Project Area Map	viii, 1
Location Map of the relationships of the River Trail, River Park and 3rd Street	ix, 4
Site Nexus Diagram	x, 12
Heritage Wall Perspective	xi, 37
Creative Play Space Perspective	xi, 42
Amphitheater, Stage and the Ford Perspective	xi, 43
Pavilion and Welcome Plaza	xi, 39
Phase III Master Site Development Plan	xii-xiii, 32-33
Priority Diagrams	xiv-xv, 56-57
Susquehanna Heritage Service Area Map	3
Table 1: Population and Age	5
Table 2: Household Types	5
Table 3: Housing Occupancy & Tenure	5
Table 4: Jobs by Worker Age	6
Table 5: Jobs by Industry Sector	6
Table 6: Educational Attainment by Working Residents	6
Historic and Cultural Resources Diagram	8
Land Ownership Diagram	8
Slope Analysis Diagram	9
Amphitheater Size Requirement Diagram	9
NR Access Easement Diagram	10
Major Programming 'Drivers' Diagram	10
Potential Activity Zones Diagram	10
Borough Access Road Diagram	10
Modified Canal Features Map	16
Development Restrictions Diagram	18
Floodplain Diagram	18
Hydrology Diagram	19
Historic and Cultural Resources Diagram	19
Perceptual Quality Diagram	20
Existing and Proposed Utility Map	21
Heritage Walk Map	34
The Great Lawn Perspective	40
The Gardens Perspective	41
The Bridge, the River Hammock and the River Steps Perspective	44
Boardwalk and Interpretative Area Perspective	46
Functional Diagrams	48-49
Table 7: Opinion of Probable Development Costs	53
Table 8: Implementation Priorities Summary Table	55
Table 9 Pennsylvania Grant Summary	59
Table 10: Operations and Maintenance Cost Summary Table	61-62
List of Photographs	63

# ACKNOWLEDGMENTS

## PROJECT MANAGERS

Rebecca Denlinger, Borough of Columbia  
Hope Byers, Susquehanna Heritage Inc.

## COLUMBIA RIVER PARK ADVISORY COMMITTEE

The Columbia River Park Advisory Committee (CRPAC) is a group of stakeholders whose role was to advise the Project Managers and the Design Team throughout the planning-design process. The stakeholders largely consist of Borough, Susquehanna Heritage and resident-at-large delegates who represent a variety of departments, boards, commissions and special interests and whose perspectives and insights are essential for the current operation and future expansion of River Park. The CRPAC members include:

Hope Byers  
Rebecca Denlinger  
Frances Fitzgerald  
Charles Hershey  
Leo Lutz  
Janice Nikoloff  
Steve Pennell  
Mark Platts  
Claire Storm  
Mary Wickenheiser  
Vince Wickenheiser

## COLUMBIA BOROUGH COUNCIL

The Columbia Borough Council is the elected body of the community and whose role was to take the recommendations of the CRPAC as outlined in the Master Site Development Plan. The current Borough Council members include:

Kelly Murphy, Council President  
John Novak, Council Vice-President  
Cleon Berntheizel, Councilman  
Todd Burgard, Councilman  
Pamela Williams, Councilwoman  
Frances FitzGerald, Councilwoman  
Marilyn Kress Hartman, Councilwoman  
Pamela Williams, Councilwoman  
Leo Lutz, Mayor



## DESIGN TEAM

Environmental Planning & Design, LLC

100 Ross Street, Suite 500

Pittsburgh, PA 15219

Andrew JG Schwartz, PLA, LEED AP, SITES AP, AICP CUD

Katie Kovalchik, PLA

Jiayu Qin, PLA

John Douglass

H. F. Lenz Company

1407 Scalp Avenue

Johnstown, PA 15904

Bryan Clement, PE

Christine Davis Consultants, Inc.

560 Penn Street

Verona, PA 15147

Mindy LaBelle

Special thanks to the CRPAC members who have helped steward the park for years and have made it part of their civic vision for the future. Thank you to the many community members and visitors who shared their insights during the planning-design process vis-a-vis the multiple surveys/questionnaires, one-on-one interviews, and numerous community events. And finally, to the Columbia Borough Council, the Borough Staff and the Pennsylvania Department of Conservation and Natural Resources for making this project possible.

This project was financed in part by a grant from the Community Conservation Program, using the Keystone Recreation, Park and Conservation Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation. BRC-RCP-22-193

# PREFACE

The site of River Park has been used for centuries by many cultures for civic purposes – a riverbank for fishing, transport and commerce. Historic uses of the site can be traced to a period between 500 and 1500 AD. The natural bounties and beauty of the Susquehanna River adjacent to River Park are fabled. Isaac Weld, Jr., an Irishman who traveled throughout the United States and Canada between 1795 and 1797 wrote specifically about the Susquehanna in the area of River Park. He noted that there were ferocious rapids formed miles above and below Columbia “whose roaring noise could be heard a great way off.” More pointedly, he noted “the scenery in every point of view is wild and romantic.”

However, for nearly 200-hundred years, the site has not been a place that the public at-large has been able to enjoy and to consider a place of their own. This changed when Columbia Borough took ownership of approximately 14-acres of land immediately adjacent to and upstream of the town’s existing Water Company facility. The community envisioned the development of a public park - a place where residents could enjoy the breathtaking sunsets and could access the Susquehanna River for fishing and boating. Over a period of 18 years, Borough and County leaders and residents have developed the northern segment of the Northwest Lancaster County River Trail and the first two phases of River Park. As the focal point of the park, the Borough constructed Columbia Crossing River Trails Center, which is managed by Susquehanna Heritage. Additionally, Lancaster and York Counties and the Susquehanna River corridor they share have been designated as a Pennsylvania Heritage Area since 2001 and were designated as the Susquehanna National Heritage Area in March 2019.

The number of visitations to the Trails Center and River Park have steadily risen each year and numbered more than 20,462 visits in 2018. It is estimated that approximately 100,000 people enjoy a walk or bike ride on the River Trail each year. These participation rates indicate that the investments and improvements made to the Columbia riverfront have been wildly successful and embraced by the public. This success has rippled into other areas of the Borough, particularly the downtown. New investments are being made in businesses and building renovations. In fact, the Borough has had to construct more than 126 additional ‘satellite’ parking spaces in order to satisfy the typical weekend demands of visitors coming to River Park and the Borough for the day.

As the River Park has grown in popularity and repute, residents and visitors alike have suggested that additional amenities and activities be developed. In 2017, Columbia Borough secured funding from the Commonwealth to develop an implementable long-term Master Site Development Plan for the third phase of the Park. This Plan should identify the development constraints and opportunities of a 10-acre parcel situated between the US Route 30 bridge and the existing River Park. The Plan should also recommend uses and facilities that satisfy local and regional recreational needs as well as celebrate the unique history and context of the River Park site. Economic analyses should be generated throughout the planning-design process to insure that the recommendations in the final Plan were grounded in economic reality. Finally, the Borough sought for the Plan to explore better connections between the Phase III site and the existing River Park facilities, the Northwest County River Trail and the downtown.

A Design Team consisting of landscape architects, community planners, engineers, environmental specialists and historians worked with the public and a steering committee to complete the Master Site Development Plan and its related studies over the course of 12-months. The following document summarizes the key conclusions and recommendations that the Design Team and the steering committee have made. The summary includes abstracts of the important facts or influences, the input and ideas garnered through an extensive community engagement process and final design recommendations and cost projections – both capital and operating.

It was previously noted that Columbia Borough and River Park are steeped in historical and cultural significance. Their reputations, in many cases, is of regional or national significance, provides a set of some unique stories that can't be told anywhere else! These stories point to the fact that for thousands of years, the River Park site has been a location where man and nature have intersected, converged and co-existed in harmony and balance. The following Master Site Development Plan is built upon the concept of Convergence. The melding of paths, people, culture and time typifies both the unique character and history of the place. Most specifically, the Master Site Development Plan fuses together a series of design elements that interpret and celebrate the convergence of River currents, geologic processes, Indian paths, industrial-age canals, railroads and industries. In sum, the Plan showcases the continuous 'coming together of nature, people, culture and social values.'





# EXECUTIVE SUMMARY

The Phase III River Park site is located along the Susquehanna River near the northern boundary of Lancaster County. It is located approximately 27 miles south or downstream of Harrisburg - the capital city of the Commonwealth. The site has been used for centuries by many cultures for a variety of civic uses and activities – a riverbank for fishing, transport, commerce, residency and recreation. Historic uses of the site can be traced to a period between 500 and 1500 AD. The natural bounty and overwhelming beauty of the Susquehanna River adjacent to River Park is fabled. Isaac Weld, Jr., an Irishman who traveled throughout the United States and Canada between 1795 and 1797 wrote specifically about the Susquehanna in the area of River Park. He noted that there were ferocious rapids formed miles above and below Columbia “whose roaring noise could be heard a great way off.” More pointedly, he noted “the scenery in every point of view is wild and romantic.”



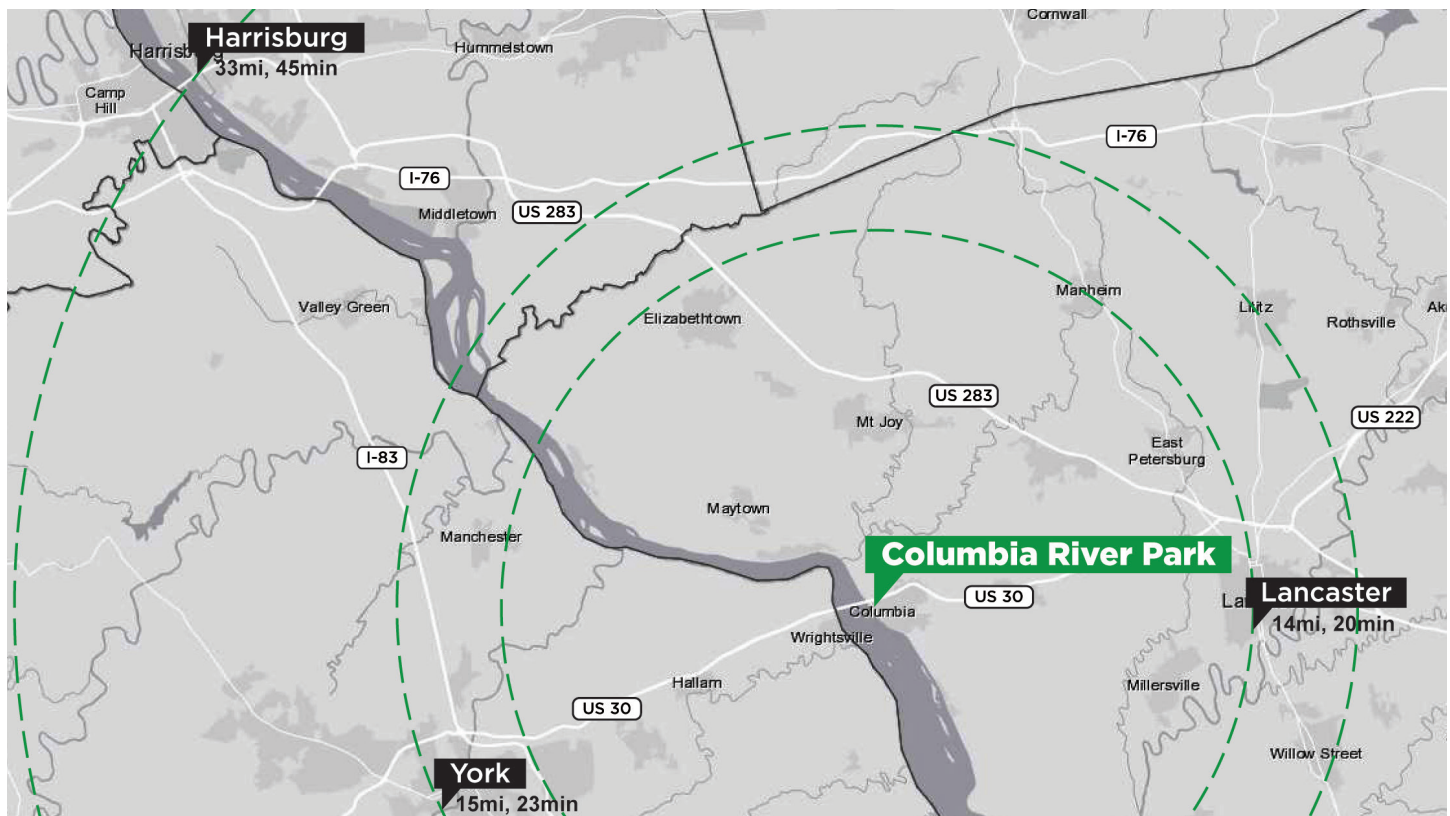
## Purpose of the Phase III Study

For the past 150-hundred years, the Phase III site has not been a place that the public at-large has been able to enjoy and to consider a place of their own. This circumstance began to change when Columbia Borough took ownership of approximately 14-acres of land immediately adjacent to and upstream of the town's existing Water Company facility. The community envisioned the development of a public park - a place where residents could enjoy the breathtaking sunsets and could access the Susquehanna River for fishing and boating. In 2015, the Columbia Crossing River Trails Center was constructed as part of the Park's Phase 1 development and serves as one of the principal trailheads for the Northwest Lancaster County River Trail. The Trails Center, most importantly, is the centerpiece of Susquehanna Heritage, a state and national heritage area that focuses on the landscapes of York and Lancaster counties and the Susquehanna Riverlands.

As the River Park has grown in popularity and reputé, residents and visitors alike have suggested that additional amenities and activities be developed. In 2017, Columbia Borough secured funding from the Commonwealth to develop a long-term Master Site Development Plan for implementation of a third phase of the Park. As part of this plan, the following analyses and studies should be included:

- development constraints and opportunities of a 10-acre parcel situated between the US Route 30 bridge and the existing River Park;
- recommendations for uses and facilities that satisfy local and regional recreational needs as well as celebrate the unique history and context of the River Park site;
- better connections between the Phase III site and the existing River Park facilities, the Northwest County River Trail and the Borough's downtown; and
- financial assessments to ensure that the plan's recommendations are grounded in economic reality.

Situated on the east bank of the Susquehanna River, Columbia River Park has the potential to be a riverfront showcase of





cutting edge public access, recreation, and interpretive features. This historically rich site features canal remains, notable bridge piers, significance in the historic Underground Railroad, natural water outfalls and breathtaking sunsets! Borough residents are proud of the community's rich history and cherish the stories of their place. They recognize that it is the people, the events and the cultural fabric that make these stories fascinating and worthy of being passed on generation after generation. Additionally, tens of thousands of visitors annually visit the River Park because of the Northwest Lancaster County River Trail, a 14-mile, multi-purpose trail. The Borough envisions the potential of River Park to be not only an everyday place for community residents – but a regional and national destination for outdoor recreation, leisure and cultural discovery.

The River Park's Phase III site encompasses approximately 10 acres and includes more than 2,600 feet of river edge. A large portion of the Phase III site is reclaimed land – the result of the Pennsylvania Canal (Eastern Division-Columbia to Duncan Island) being backfilled in the 20th century. Consequently, daylighting streams that were culverted decades ago, addressing municipal MS4 challenges, improving the Susquehanna River's water quality, elevating the health of the Chesapeake Bay and respecting the power of the River during winter ice flows and seasonal high-water events are important considerations that the Phase III Master Site Development Plan should address.



## Planning Process

The Phase III planning-design effort was financed in part by a grant from the Community Conservation Partnerships Program, using the Keystone Recreation, Park and Conservation Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation (Bureau). The Master Site Development Plan was created over the course of an 11-month time period. The planning-design effort was officially kicked-off in March 2018 and utilized extensive and on-going public engagement and input throughout the process. In total, more than 1,200 persons participated in the effort by expressing their concerns, aspirations and ideas. This participation was invaluable in the creation of the final Plan and is the basis for the community's overwhelming support.

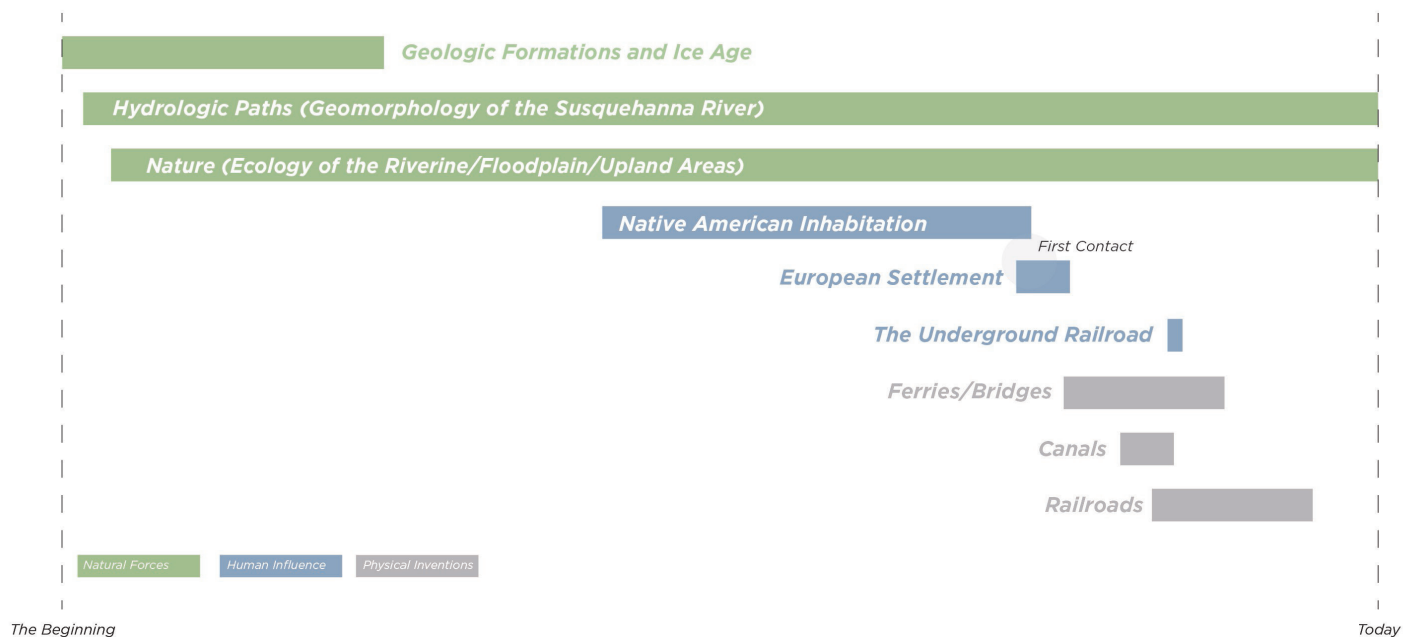
## Key Background Analyses And Findings/Conclusions

Columbia's River Park is one of the most culturally and historically significant sites in Central Pennsylvania and the Lower Susquehanna River Valley. Early indigenous cultures such as the Shenks Ferry people or later Native American cultures such as the Susquehannock made their summer residence along the River's banks. Trails for fishing, hunting and commerce were developed along the River's edge and nearby ridge tops. Because the River's bottom becomes shallow and its flow slows as it approaches River Park, the site has historically been an ideal location to ford the River – either by ferry or bridge.



However, the historical and cultural import area of the place is based on a host of circumstances related to the region’s extensive natural resources and the awesome power of nature that shaped the region’s landscape and the River itself. Unfathomable geologic and hydrologic forces created the ridge formations where Chickies Rock County Park is located. The gradual ascent where Columbia Borough currently sits, and, most notable, the river valley chiseled into existence by the brut force of the glacial period’s abundance of ice, water and sediment.

The Phase III planning-design process focused on uncovering and understanding the natural, historical and cultural stories or influences of the place as well as the circumstances that characterize or animate River Park the most. A set of significant influences or stories emerged as the most consequential and have been extensively used to not only inform or shape the Master Site Development Plan’s overall design but to give “soul, spirit and richness” to the specific features and improvements recommended as part of Phase III future development. See graphic below.



## Community Engagement

The community vision for River Park began to be formally articulated in 2000. This was the first time that Columbia Borough recognized the importance of the Susquehanna River outside of its historic role as a transportation corridor and a place for industry. Rather, residents began to view the river edge as a “green lifeline” for the community – a place for recreation, ecology and cultural celebration. Since that time, various plans, studies and developments have occurred, including the 2004 Columbia Downtown Development Corporation Public Input and Visioning Session and the Columbia River Park Master Plan in 2006.

As part of the Phase III planning-design effort, the Borough and the Columbia River Park Advisory Committee (CRPAC), an entity appointed by Borough Council with its express purpose to guide the development and operation of the Park, published a community-wide survey at the outset of the effort. They also distributed a follow-up questionnaire at the project’s midway point as means of focusing the public on the initial concepts that had been generated to date. The CRPAC also hosted a community-wide open house and facilitated two (2) public meetings (July 2018 and November 2018). Throughout the entirety of planning-design process, the CRPAC held eight (8) review meetings where at-large members of the public were invited to attend and to share their thoughts and comments.



## Design Concept

A design concept is a foundational idea that gives a design its depth, meaning, direction and in some cases its physical form and composition. A design concept serves to anchor the detailed design work and shapes the recommended design interventions or improvements. A design concept should be summed up as a sentence or short statement that can also be represented visually.

The design concept for Phase III is - Convergence: Paths, People, Cultures and Time. This philosophical foundation recognizes and reinforces that for thousands of years, the Phase III site has been a location where man and nature have intersected and co-existed in harmony and balance. The notion of convergence focuses on the flow of the Susquehanna River, the nearby rock outcrops and river rapids, the storied Native American paths, the industrial-age canals, railroads and industries. Additionally, convergence implies the continuous ‘coming together of people, culture and social values.’ The melding of paths, people, culture and time typifies both the unique character and history of the place as well as the recommended Phase III Master Site Development Plan.

The following Master Site Development Plan outlines a vision for the future development of the Phase III site. The Plan consists of a set of birds-eye planimetric drawings and perspective views of the design vision as well as the recommended connections to the Northwest Lancaster County River Trail and the Borough’s downtown (via Walnut Street). The Master Site Development Plan, however, does not provide a set of architectural drawings from which a contractor can build immediately. Functional and structural design issues remain to be studied and detailed design solutions formulated. This should be the next step in the Master Site Development Plan’s implementation.

Important features or amenities that have been integrated into the Master Site Development Plan include:

### Uplands

- The Heritage Walk and Heritage Story Wall
- The Riverwalk
- Pavilion and Welcome Plaza
- The Great Lawn
- The Gardens
- Creative Play Space
- The River Steps
- Woodland Paths
- Amphitheater, Stage and the Ford
- The Bridge, the River Hammock and the River Steps
- Boardwalk and Interpretative Area

### Floodplain

- Floodplain Trails
- Island Bridge
- The First Bridge Interpretative Site
- Dog-Friendly Area
- Group Camping Area













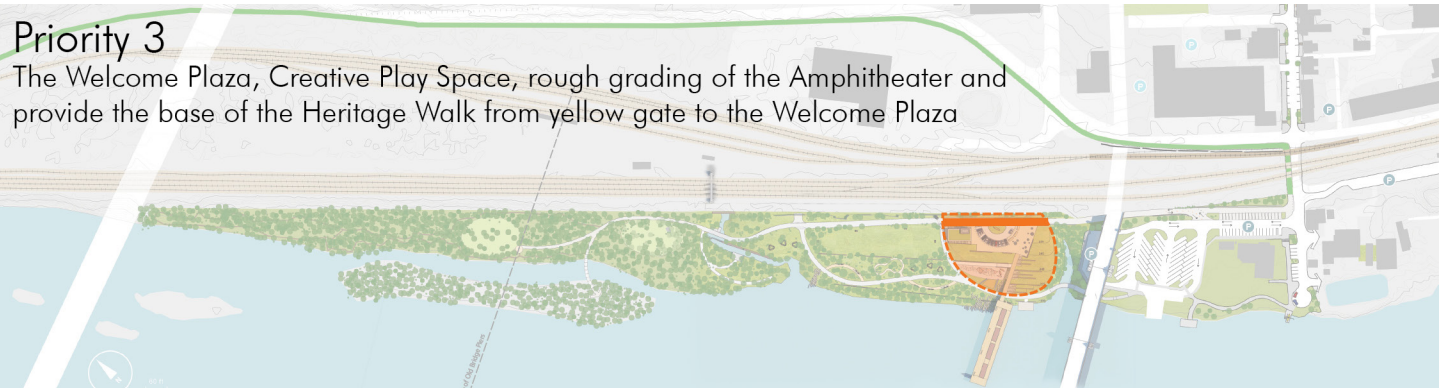
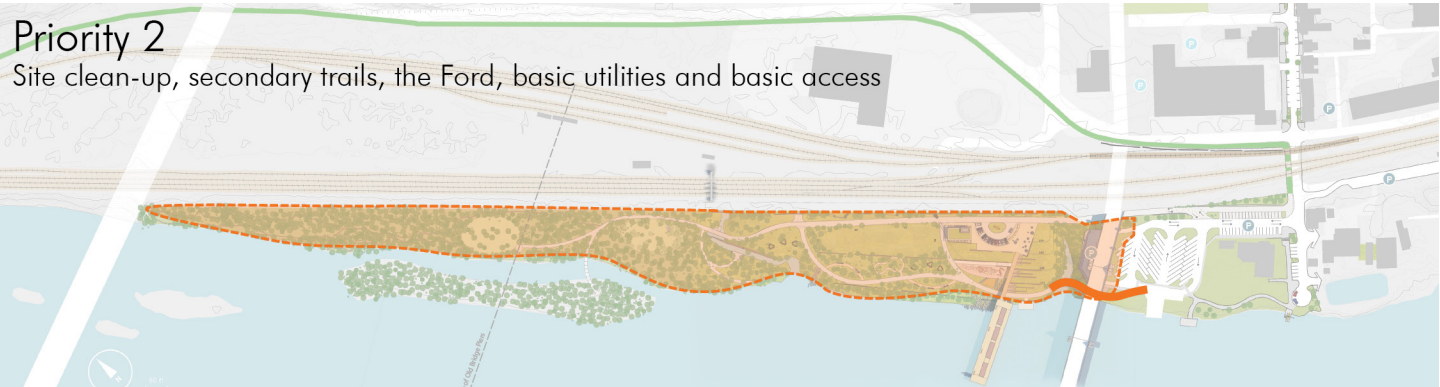
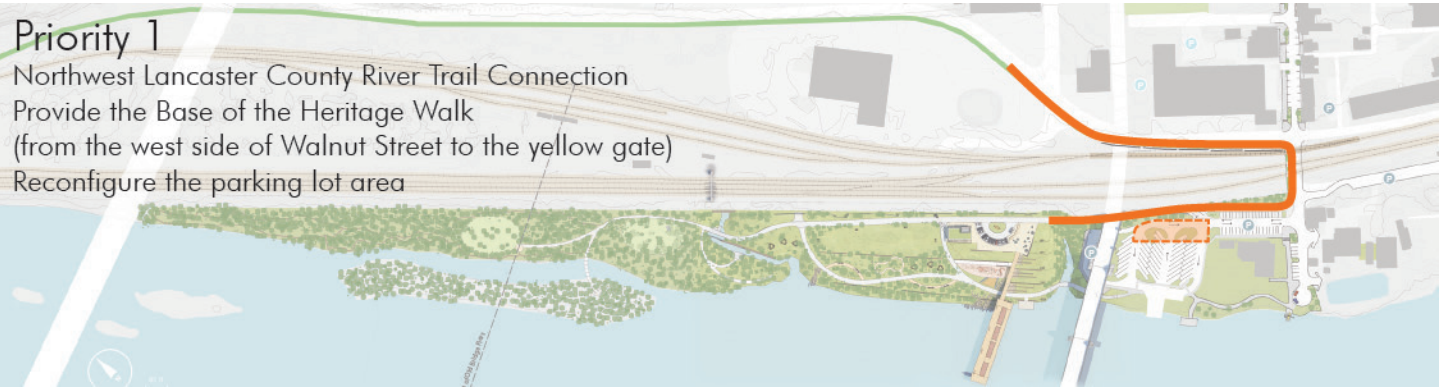
Cost Summary

As part of the planning-design effort, the capital costs related to the Master Site Development Plan’s physically-oriented recommendations were projected. Capital costs are fixed, one-time expenses incurred on the purchase of land, buildings, equipment or the construction/renovation of a building and subsequent improvement of the land the building sits upon.

A set of Opinion of Probable Development Costs (OPDC) were generated during the planning-design process and were used by the CRPAC to evaluate the finance feasibility of the various design concepts and to shape the physical form and building materials envisioned by the concepts. Finally, park development projects that are of the scale and complexity of Phase III sometimes need to be constructed in stages or phases that span a period of years. The OPDC was utilized by the CRPAC to delineate potential implementation or construction phases and to determine a realistic timeframe for buildout of the Phase III site.

Estimated Costs

DEVELOPMENT AREA AND GENERAL SITE IMPROVEMENTS	TOTAL IMPROVEMENT COST
<i>Heritage Walk</i>	<i>\$985,000</i>
<i>Welcome Plaza</i>	<i>\$690,000</i>
<i>Utilities</i>	<i>\$275,025</i>
<i>Pavilion and Restroom Building</i>	<i>\$425,000</i>
<i>The Bridge</i>	<i>\$450,000</i>
<i>Creative Play Space</i>	<i>\$210,400</i>
<i>The Great Lawn, Event Lawn and Stormwater Gardens</i>	<i>\$450,000</i>
<i>The Stage and the Ford</i>	<i>\$295,000</i>
<i>The River Walk and Gardens</i>	<i>\$385,499</i>
<i>Amphitheater</i>	<i>\$355,000</i>
<i>Heritage Wall</i>	<i>\$404,500</i>
<i>Floodplain (Dog-Friendly Park, Group Camping Area, Island Bridge, etc.)</i>	<i>\$100,000</i>
<i>Overall Park</i>	<i>\$340,000</i>
<i>Walnut Street Streetscape</i>	<i>\$144,000</i>
Estimated Total:	\$5,509,424
<b>IMPROVEMENTS THAT COULD BE IMPLEMENTED</b>	
<i>Northwest Lancaster County River Trail Connection</i>	<i>\$1,255,050</i>
<i>River Hammock</i>	<i>\$2,000,000</i>
Overall Total	\$8,764,474





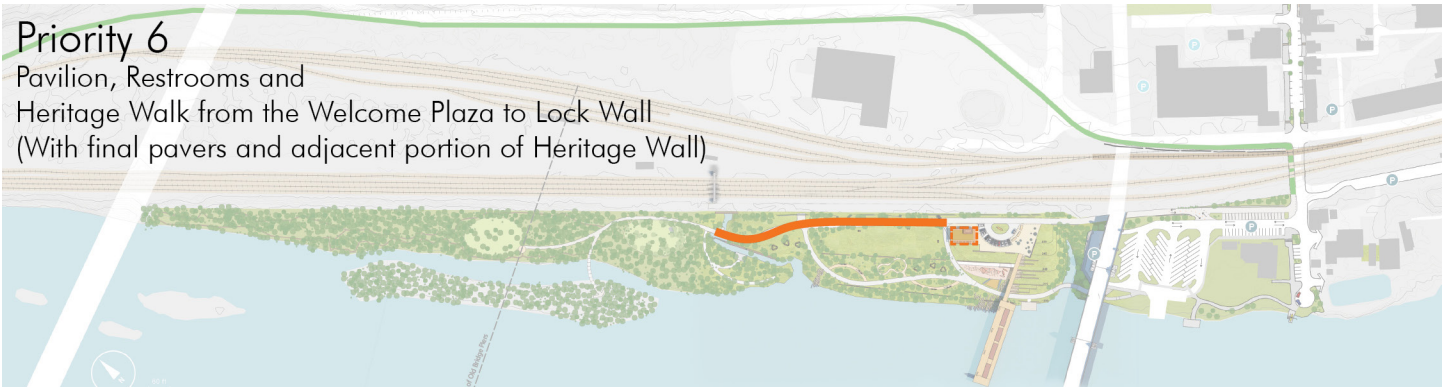
### Priority 5

The River Walk, Great Lawn, River Steps and Gardens



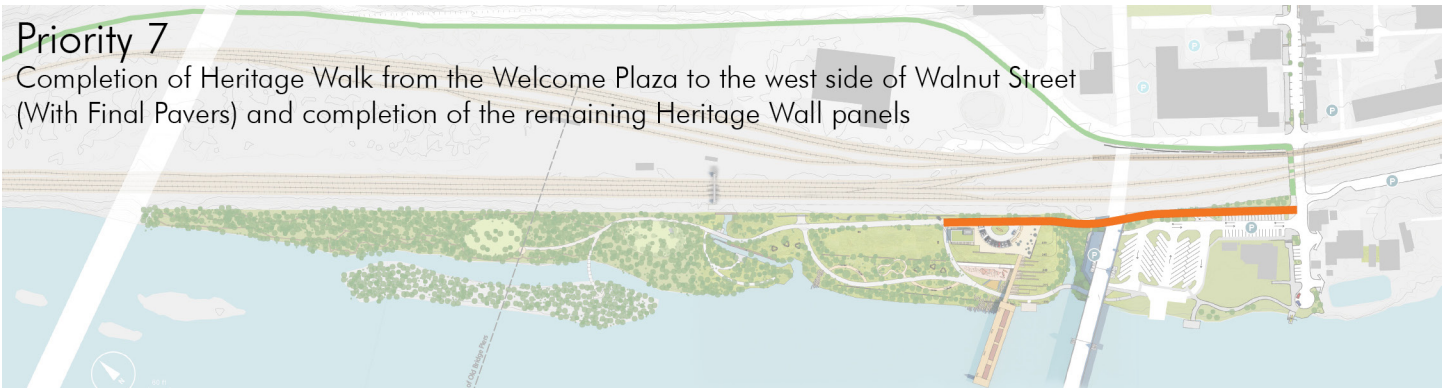
### Priority 6

Pavilion, Restrooms and Heritage Walk from the Welcome Plaza to Lock Wall (With final pavers and adjacent portion of Heritage Wall)



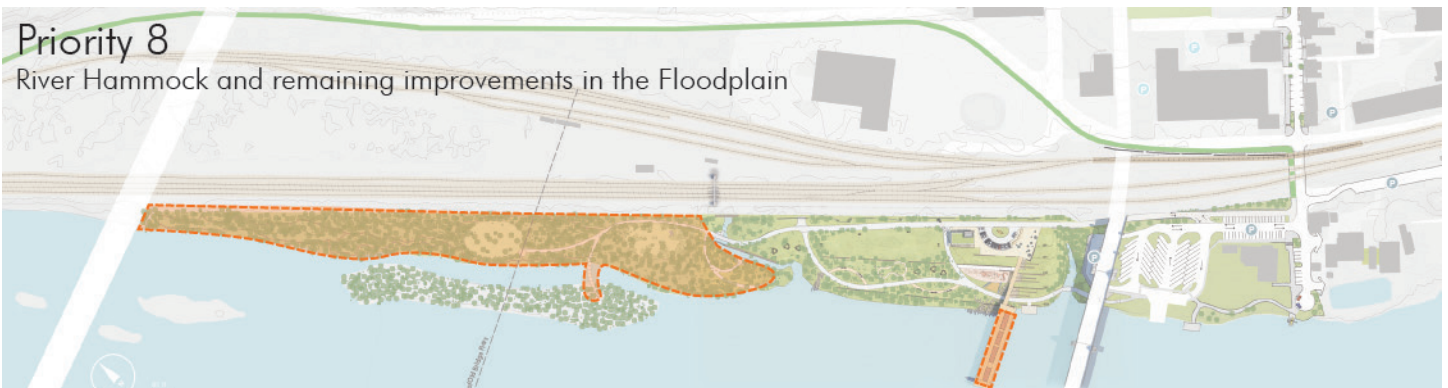
### Priority 7

Completion of Heritage Walk from the Welcome Plaza to the west side of Walnut Street (With Final Pavers) and completion of the remaining Heritage Wall panels



### Priority 8

River Hammock and remaining improvements in the Floodplain





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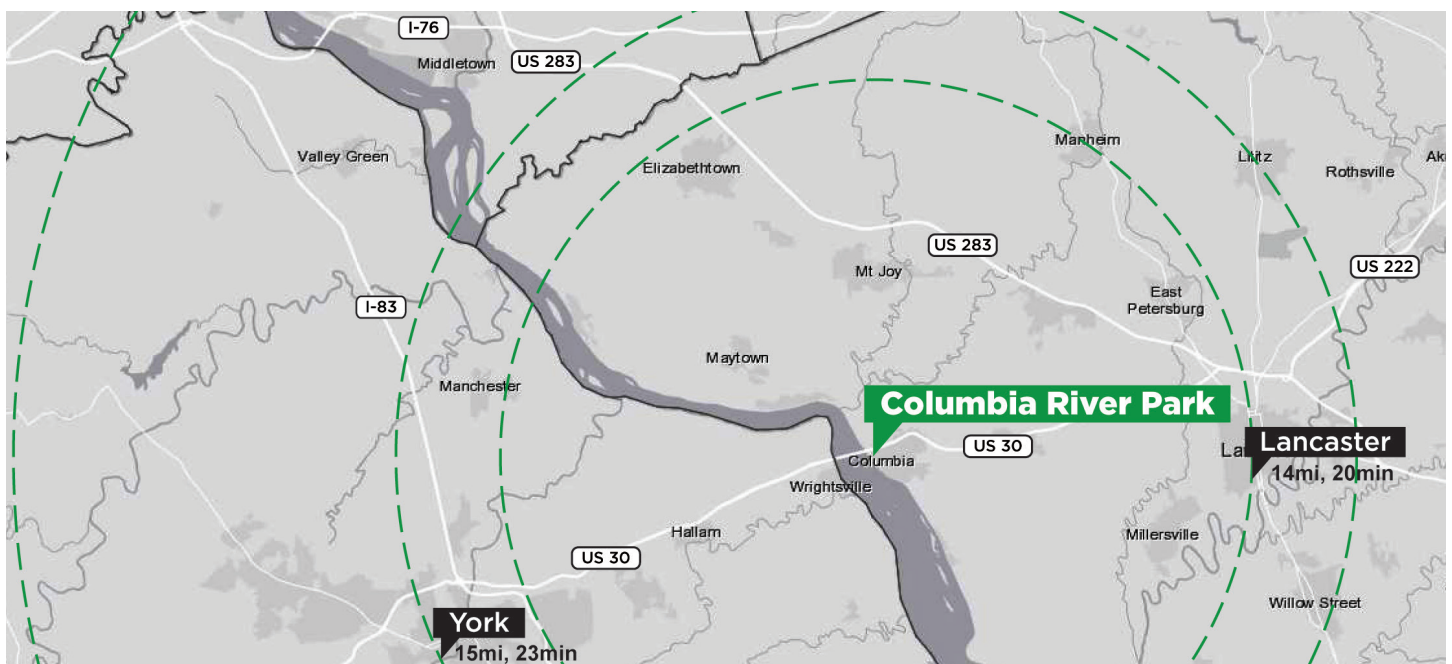
# 1. PURPOSE AND PROCESS

## Overview

Situated on the east bank of the Susquehanna River, Columbia River Park has the potential to be a riverfront showcase of cutting edge public access, recreation, and interpretive features. This historically rich site features canal remains, notable bridge piers, significance in the historic Underground Railroad, natural water outfalls and breathtaking sunsets! Borough residents are proud of the community's rich history and cherish the stories of their place. They recognize that it is the people, the events and the cultural fabric that make these stories fascinating and worthy of being passed on generation after generation. Additionally, thousands of visitors currently flock to River Park to access the Northwest Lancaster County River Trail, a 14-mile, multi-purpose trail extensively used by walkers and cyclists. The Borough envisions the potential of River Park to be not

only an everyday place for community residents – but a regional and national destination for outdoor recreation, leisure and cultural discovery.

The River Park's Phase III site encompasses approximately 10 acres and includes more than 2,600 feet of river edge. A large portion of the Phase III site is reclaimed land – the result of the Pennsylvania Canal (Eastern Division-Columbia to Duncan Island) being backfilled in the 20th century. Consequently, daylighting streams that were culverted decades ago, addressing municipal MS4 challenges, improving the Susquehanna River's water quality, elevating the health of the Chesapeake Bay and respecting the power of the River during winter ice flows and seasonal high-water events are important considerations that the Phase III Master Site Development Plan should address.



## Master Site Development Plan

As part of realizing this vision, preparing the Phase III Master Site Development Plan for River Park is a key civic endeavor. The Borough hopes to leverage the many elements of this treasured riverfront — environmental and ecological, passive and active recreation, historic and cultural — for the benefit of Columbia's present and future community and economic development initiatives. As such, the Master Site Development Plan will recommend a long-term development program for the Phase III site, potential improvements needed to better integrate Phases 1, 2 and 3 as well as recommendations for connecting the River Park to the Borough's downtown district — specifically 3rd Street. The Plan will also project costs for both constructing the park expansion and to sustainability operate and maintain the overall facilities.

## Planning-Design Process

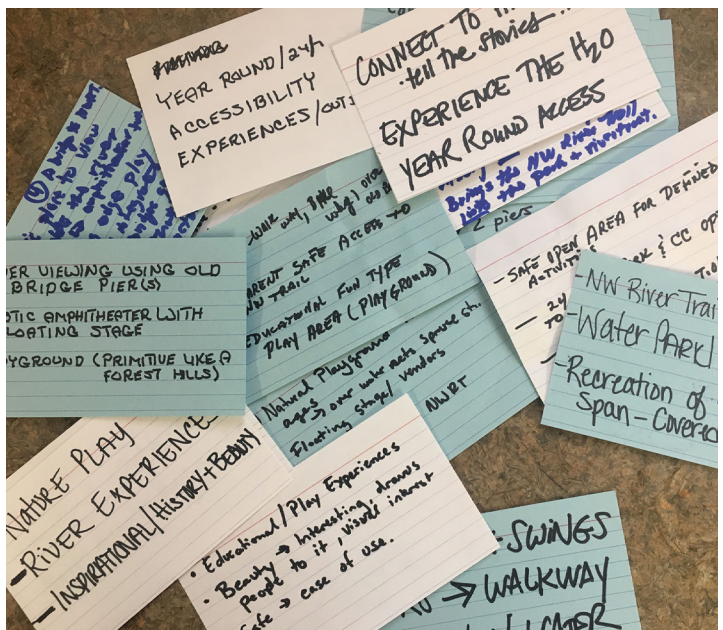
The Master Site Development Plan was created over the course of an 11-month time period. The planning-design effort was officially kicked-off in March 2018 and utilized extensive and on-going public engagement and input throughout the process. In total, more than 1,200 persons participated in the effort by expressing their concerns, aspirations and ideas. This participation was invaluable in the creation of the final Plan and is the basis for the community's overwhelming support.

The planning-design process undertook successive cycles to:

1. find/determine facts and perceptions
2. define goals and principles to guide the synthesis and refinement of ideas
3. obtain public input regarding the wants/desires/needs of the community
4. ideate concepts and refine into a single, unified vision
5. project implementation, operations and maintenance costs
6. define development phases and next steps
7. build consensus towards plan adoption and implementation.

## Planning-Design Funding

The Phase III planning-design effort was financed in part by a grant from the Community Conservation Partnerships Program, using the Keystone Recreation, Park and Conservation Fund, under the administration of the Pennsylvania Department of Conservation and Natural Resources, Bureau of Recreation and Conservation (Bureau). The Borough and its consultants have prepared the Master Site Development Plan and its supporting documents in accordance with the Bureau's grant requirements and planning standards.



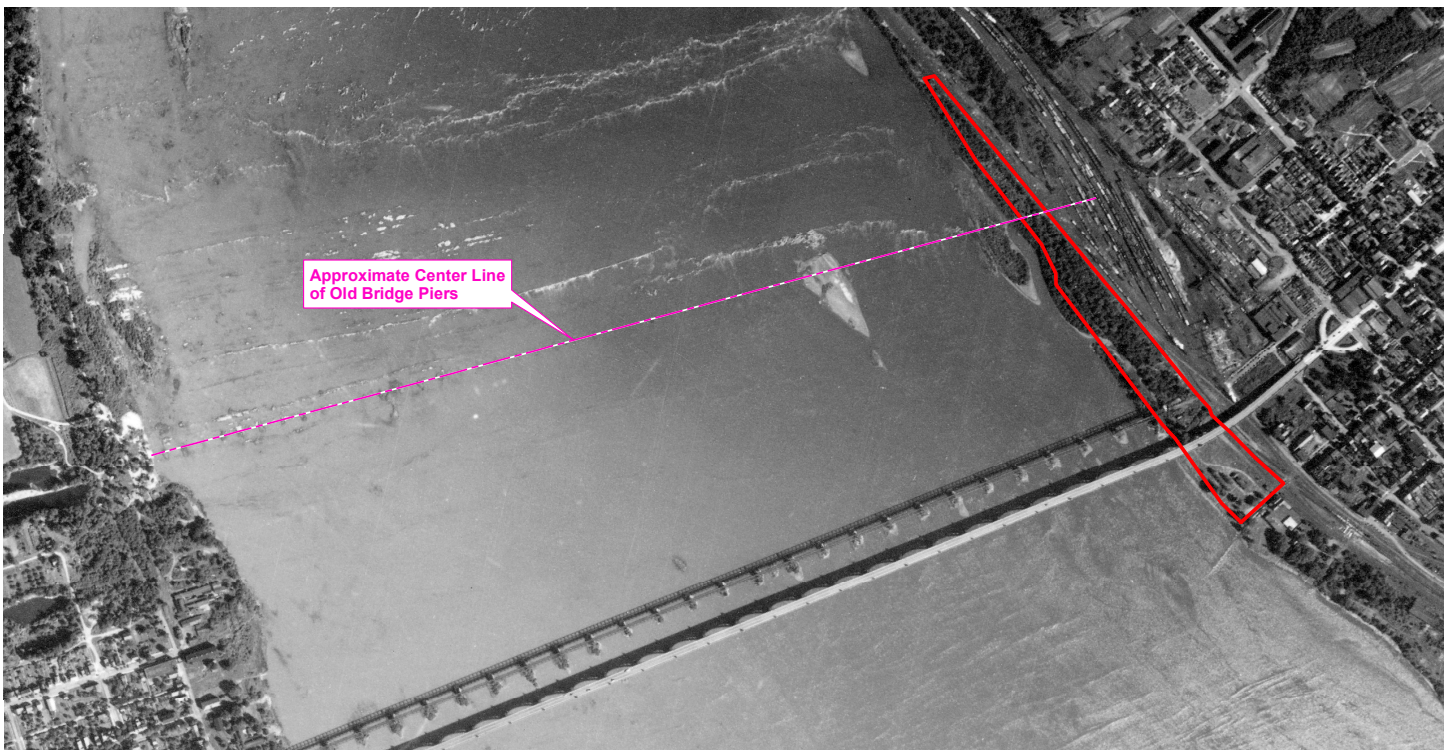


## 2. PLACE

### 2.1 Regional and Community Juxtaposition

The River Park Phase III site is located along the Susquehanna River near the northern boundary of Lancaster County. The site is approximately 27 miles south or downstream of Harrisburg - the capital city of the Commonwealth. Phase III immediately adjoins the park's previous development phases (I and II). The Columbia Crossing River Trails Center was constructed in 2015 as part of the park's Phase 1 development and serves as one of the principal trailheads for the Northwest Lancaster County River Trail. The Trails Center, most importantly, is the centerpiece of Susquehanna Heritage, a state heritage area originally created by the Pennsylvania Legislature in 2001 and re-purposed in 2007 with a renewed focus on the Susquehanna River. More than 23,000 persons visited the Trails Center in 2017 with an expansion of programming and an increase in special events and private rentals.

The Susquehanna National Heritage area focuses on Lancaster County and York County with specific focus on the Susquehanna Riverlands.





## Borough of Columbia

The Phase III site also lies approximately six blocks northwest of Columbia's 3<sup>rd</sup> Street – the main commercial corridor bisecting the Borough. The site is accessed from Walnut Street and the Heritage Drive Extension through the previously developed portions of River Park. The Phase III site is highly visible from both the Wrights Ferry Bridge (US Route 30) and the Veterans Memorial Bridge (PA Route 462) which is a famed Susquehanna River crossing that has tied Columbia, Lancaster County and Wrightsville, York County together for almost 200 years. The current concrete arch bridge has been in use for over 90 years.



## Community Profile

Columbia Borough, with a 2016 estimated population of 10,400 residents and 4,672 total housing units, has a moderate percentage of renters (41%) mixed in with homeowners. Generally, the community's population is older than 65 years of age (15.9%) which is comparable to Lancaster County and Pennsylvania as a whole. The Borough encompasses 1,542 acres or 2.41 square miles and subsequently has a population density of 6.75 persons per acre or 4,300 persons per square mile. This ranks the third-most dense community in Lancaster County – only behind Elizabethtown and Millersville. Most importantly, the community has a high proportion of family households (69.5% of the total number of households) and a growing number of single-person households. These two factors are important considerations when outlining potential development program ideas as well as the specific features or elements to be incorporated into the Master Site Development Plan.

**Table 1: Population and Age**

Population Sector	COLUMBIA BOROUGH		LANCASTER COUNTY		PENNSYLVANIA	
	# of Persons	% of Total	# of Persons	% of Total	# of Persons	% of Total
<b>Total Population</b>	<b>10,400</b>		<b>519,445</b>		<b>12,702,379</b>	
New Born to 19 Years Old	2,635	25.3%	144,620	27.8%	3,179,390	25.0%
20 to 44 Years Old	3,395	32.6%	159,652	30.7%	4,000,934	31.5%
45 to 64 Years Old	2,718	26.1%	137,393	26.4%	3,562,748	28.0%
over 65 Years Old	1,652	15.9%	77,780	15.0%	1,959,307	15.4%

**Table 2: Household Types**

Household Sectors	COLUMBIA BOROUGH		LANCASTER COUNTY		PENNSYLVANIA	
	# of Households	% of Total	# of Households	% of Total	# of Households	% of Total
<b>Total Households</b>	<b>4,298</b>		<b>193,602</b>		<b>5,018,904</b>	
Family Households	2,542	69.5%	135,401	70.0%	3,261,307	70.7%
Family Households with Children Under 18 Years Old	1,115	30.5%	57,998	30.0%	1,352,324	29.3%
<b>Householder Living Alone</b>	<b>1,430</b>		<b>46,793</b>		<b>1,433,415</b>	
Male Only	635	30.9%	19,726	29.6%	620,575	30.9%
Male Only over 65 Years Old	175	8.5%	5,407	8.1%	159,653	8.0%
Female Only	795	38.6%	27,067	40.6%	812,840	40.5%
Female Only over 65 Years Old	452	22.0%	14,547	21.8%	412,972	20.6%

**Table 3: Housing Occupancy & Tenure**

Housing Units	COLUMBIA BOROUGH		LANCASTER COUNTY		PENNSYLVANIA	
	# of Housing Units	% of Total	# of Housing Units	% of Total	# of Housing Units	% of Total
<b>Total Housing Units</b>	<b>4,672</b>		<b>202,952</b>		<b>5,567,315</b>	
Occupied Housing Units	4,298	92.0%	193,602	95.4%	5,018,904	90.1%
Vacant Housing Units	374	8.0%	9,350	4.6%	548,411	9.9%
Owner-Occupied Housing Units	2,430	59.0%	132,703	68.5%	3,491,722	69.6%
Renter-Occupied Housing Units	1,686	41.0%	60,899	31.5%	1,527,182	30.4%

Nearly 50% of the Borough's residents were employed in 2016. Of these persons, over 41% also had earned some form of college degree (associate/bachelor/graduate/doctoral). This is an indicator of a highly educated resident population whose recreational preferences and leanings gravitated towards non-traditional and/or non-athletic activities. Outdoor activities such as walking, cycling, hunting, fishing, canoeing/kayaking and climbing tend to be of more interest than organized sports such as baseball or soccer.

**Table 4: Jobs by Worker Age**

COLUMBIA BOROUGH		
Worker Age	Jobs	% of Total
<b>Total Jobs</b>	<b>2,729</b>	
Age 29 or Younger	559	20.5%
Age 30 to 54	1,390	50.9%
Age 55 or Older	780	28.6%

These jobs fall predominately into the following employment clusters or sectors:

**Table 5: Jobs by Industry Sector**

COLUMBIA BOROUGH		
NAICS Industry Sector	Jobs	% of Total
<b>Total Jobs</b>	<b>2,729</b>	
Agriculture, Forestry, Fishing and Hunting	0	0.0%
Mining, Quarrying, and Oil and Gas Extraction	0	0.0%
Utilities	19	0.7%
Construction	40	1.5%
Manufacturing	852	31.2%
Wholesale Trade	221	8.1%
Retail Trade	323	11.8%
Transportation and Warehousing	18	0.7%
Information	8	0.3%
Finance and Insurance	50	1.8%
Real Estate and Rental and Leasing	20	0.7%
Professional, Scientific, and Technical Services	25	0.9%
Management of Companies and Enterprises	3	0.1%
Administration & Support, Waste Management and Remediation	26	1.0%
Educational Services	239	8.8%
Health Care and Social Assistance	472	17.3%
Arts, Entertainment, and Recreation	57	2.1%
Accommodation and Food Services	199	7.3%
Other Services (excluding Public Administration)	103	3.8%
Public Administration	54	2.0%

In addition to the these socio-economic profiles, the Design Team also examined the Borough's employment base to understand the complexion of the community and what influences these may have on the planning-design process. As of 2012, Columbia was home to more than 2,700 jobs with over 50% being filled by persons aged between 30 and 54 years of age.

**Table 6: Educational Attainment by Working Residents**

COLUMBIA BOROUGH		
Working Resident Educational Attainment	Jobs	% of Total
<b>Total Working Residents</b>	<b>5,109</b>	
Less than High School	401	7.8%
High School or Equivalent, No College	1,333	26.1%
Some College or Associate Degree	1,258	24.6%
Bachelor's Degree or Advanced Degree	861	16.9%
Educational Attainment not Available (Workers Aged 29 or Younger)	1,256	24.6%



Borough Civic Green Spaces

In addition to River Park, Columbia has five other parks or civic green spaces that are dispersed throughout the community. The largest civic green space intended for recreation is Glatfelter Memorial Field, which comprises more than 20 acres and is considered an athletic facility. The green spaces includes one large flatfield, a track, three tennis courts and five ball diamonds. A large parking area, a few gazebos and a large pavilion provide support to the athletic activities. All of Columbia’s green spaces, exclusive of River Park, are located within residential areas and are largely accessed via walking or bicycling. Parking facilities at the parks are generally minimal with the exception of Glatfelter Memorial Field. Residents have historically been able to effectively adapt by using on-street parking spaces located along nearby neighborhood streets.

Glatfelter Memorial Field, River Park and Makle Park are the Borough’s three green spaces where pavilions are located and available for rental. Makle Park also contains a set of sport courts. Janson Park contains one ball diamond but has a substantial amount of maintained lawn area suitable for spontaneous play. All parks, with the exception of River Park and Glatfelter Memorial Field, have small playgrounds. No civic green space in the Borough is sized for or designed for large-scale passive-oriented community uses or activities.

In sum, Columbia has very limited green spaces available for the public to use and enjoy - a total of 49 acres when including River Park’s Phase III site. This represents slightly more than 3% of the Borough’s total land area – a figure well below the recommended national open space standard (8-12%) for an urban place or town. This deficiency magnifies the importance of the Phase III area and how its future development is best used to satisfy community needs for recreation and leisure.

In sum, the Borough’s civic green spaces include:

River Park (4 acres in Phase 1 and 2 and 10 acres in Phase III)	14 acres
Makle Park	11 acres
Rotary Park	3 acres
Janson Park	5 acres
Locust Street Park	6 acres
Glatfelter Memorial Field	20 acres

Northwest Lancaster County River Trail and Chickies Rock County Park

Known across the Commonwealth as an extraordinary rail-trail, Lancaster County began to plan the Northwest Lancaster County River Trail in 2000 and opened the first section in 2014. This multi-purpose trails traces the shoreline of the Susquehanna and is situated within a former Pennsylvania Canal and Pennsylvania Railroad corridor. Once complete the trail will stretch 14 miles from Columbia River Park to Conoy Canal Park in the small town of Falmouth. Currently, the trail is complete through to Bainbridge at Koser Park – 11 miles. The finished trail surface is asphalt as multiple sections sit within the flood plan. Although the NW River Trail is exceptionally popular on its own, Lancaster County and state agencies have a long-term vision to connect the River Trail to the Enola Low-Grade Trail. Once connected and complete there would be over 52 miles. Today, the estimated trail traffic exceeds an average of 330 per day. Columbia Crossing River Trails Center is currently the only staffed trailhead along the NW River. This means that the Columbia River Park and Columbia Crossing facility can serve as a starting point for a trail excursion, a layover for long distance riders, or a destination of terminus for a long ride or walk.

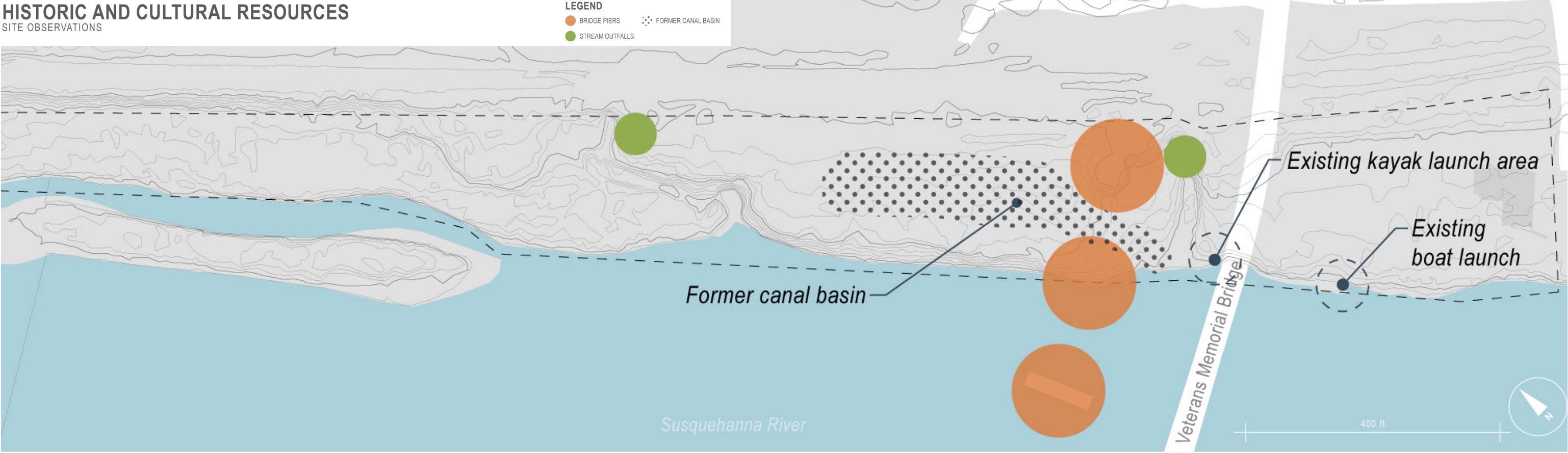
Chickies Rock County Park

Located between the boroughs of Columbia and Marietta, Chickies Rock County Park is the county’s second largest regional park. The Lancaster County Commissioners began acquiring this park property in 1977; today, the park encompasses approximately 425 acres. Chickies Rock County Park’s name is derived from the American Indian word Chiquesalunga meaning “place of the crayfish.” The park includes Chiques Creek, Donegal Creek, and selected points to the Susquehanna River. The regional park is passive in nature; no athletic fields exist and the parking facilities are sized to support smaller groups of hikers, photographers, bird watchers, etc. The County Park is regionally known in the climbing community for its rock climbing challenges – suitable for both beginners and advanced/experienced climbers. The Park is accessed from PA Route 441 as well as the Northwest Lancaster County River Trail via a connector path. Because of the shear rock cliffs affronting the Susquehanna River, the majority of the County Park’s accessible areas are perched more than 587 feet above the River Trail.

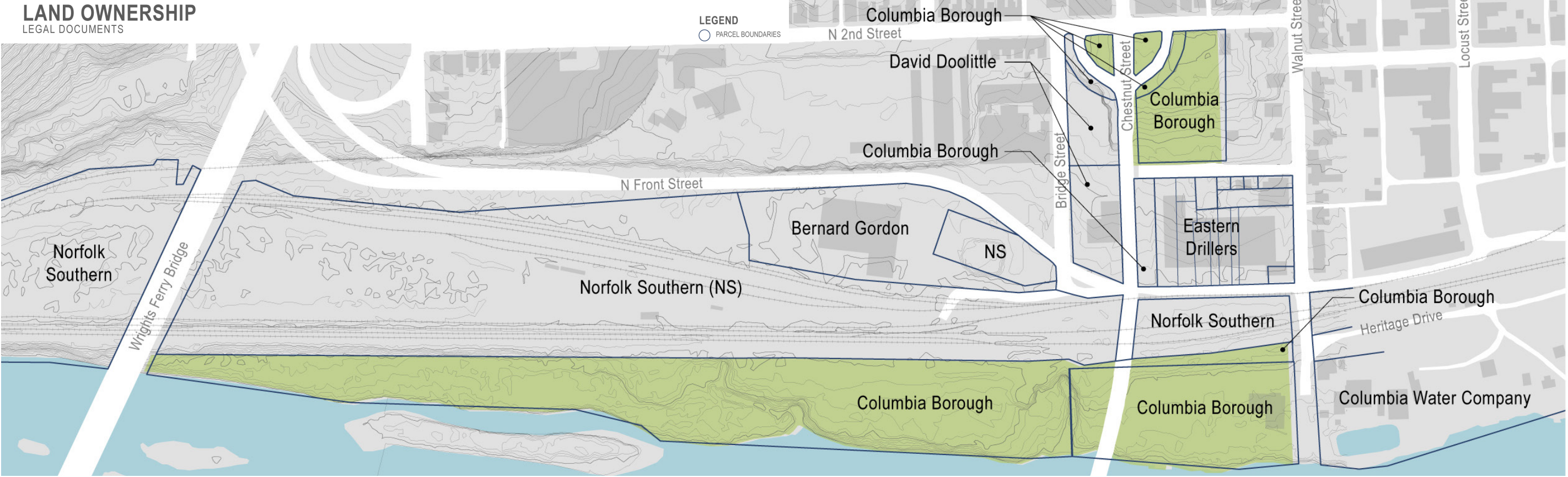




HISTORIC AND CULTURAL RESOURCES  
SITE OBSERVATIONS

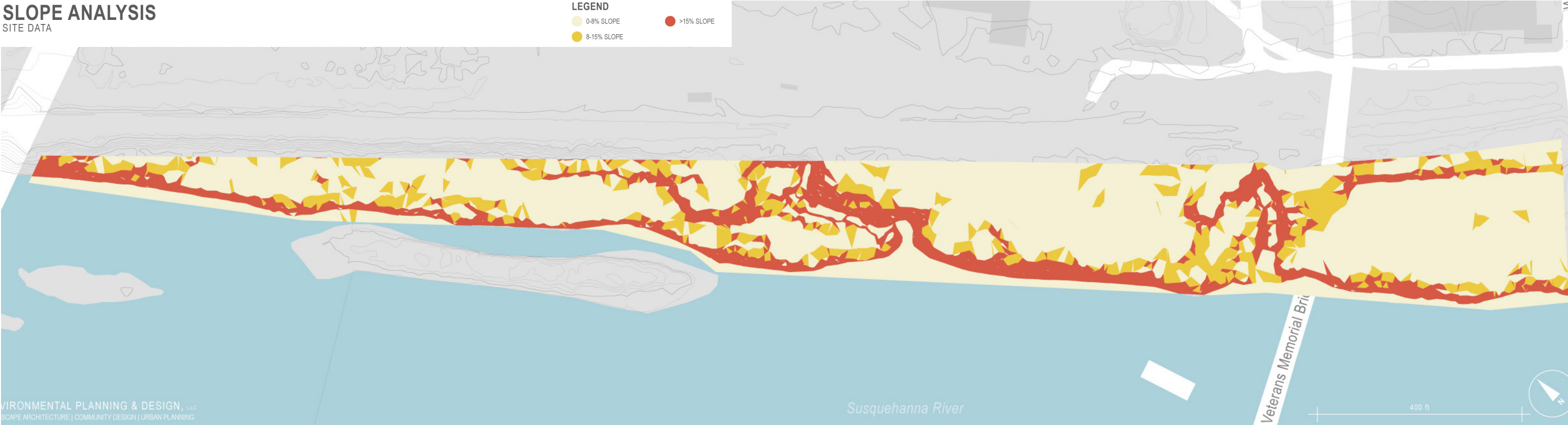


LAND OWNERSHIP  
LEGAL DOCUMENTS





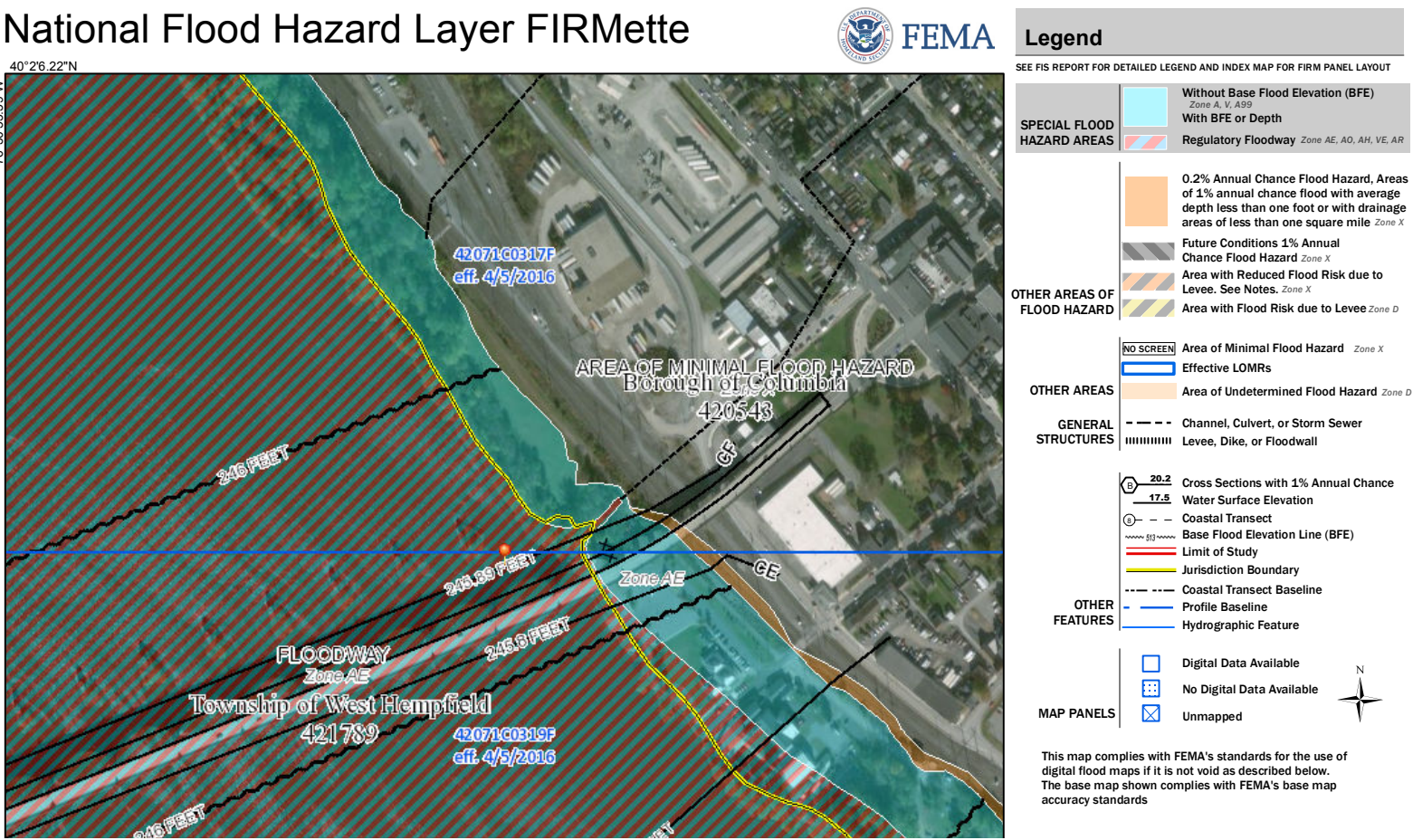
SLOPE ANALYSIS  
SITE DATA



AMPHITHEATER SIZE REQUIREMENT



National Flood Hazard Layer FIRMette

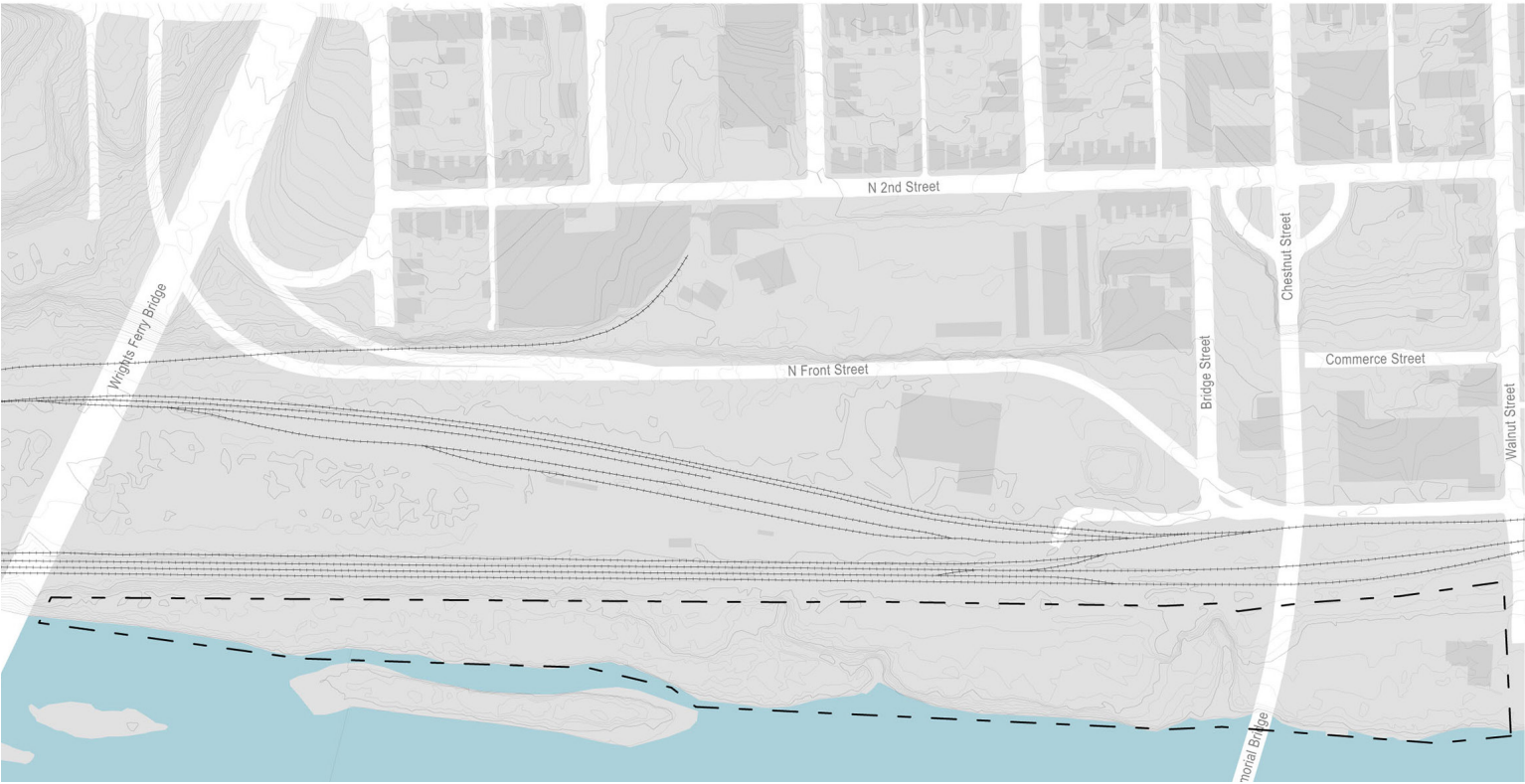




NS ACCESS EASEMENT  
SITE OBSERVATIONS



POTENTIAL ACTIVITY ZONES  
SITE DATA



MAJOR PROGRAMMING 'DRIVERS'  
SITE OBSERVATIONS



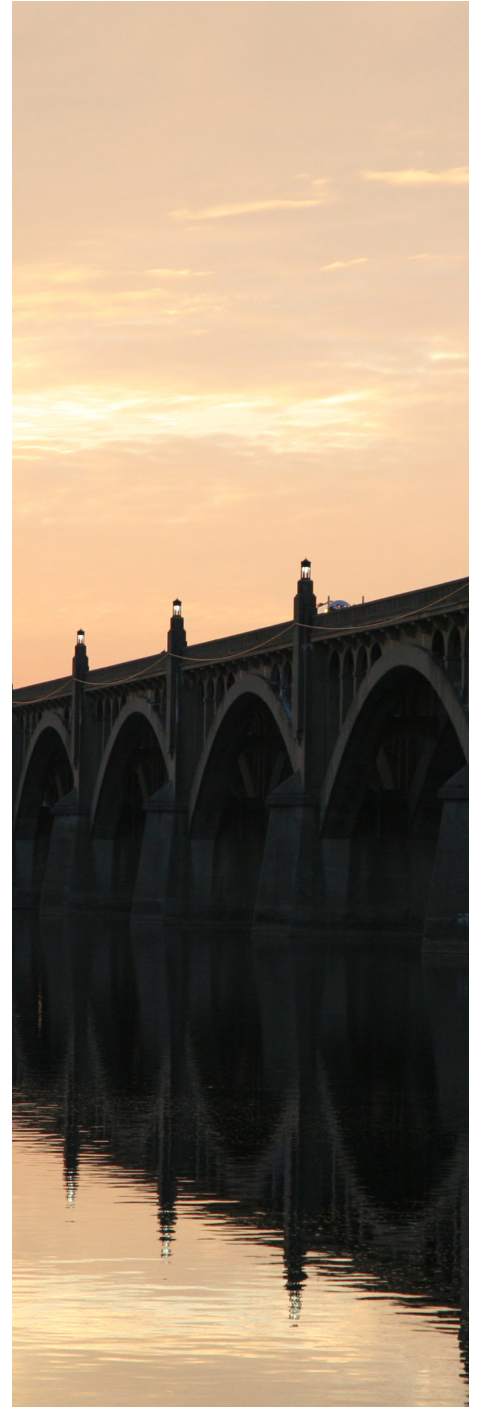
BOROUGH ACCESS ROAD  
SITE OBSERVATIONS





## Related Borough Planning Initiatives

- [2004] Received PA DCNR Grant for River Park Revitalization and Expansion Project
- [2006] Completion of the Columbia River Park Master Plan
- [2007-2009] Phase I Construction Package
- [2009] Phase I Improvements complete
- [2011] Phase III Acquisition
- [2013-2014] Phase II Construction of Columbia Crossing River Trails Center
- [2016-2017] Phase I and II; Columbia Borough transitions from lease to ownership
- [2018-2019] Phase III Master Plan Initiative
- [2019] Phase III Master Plan complete



## 2.2 Weaving of Nature, History and Culture

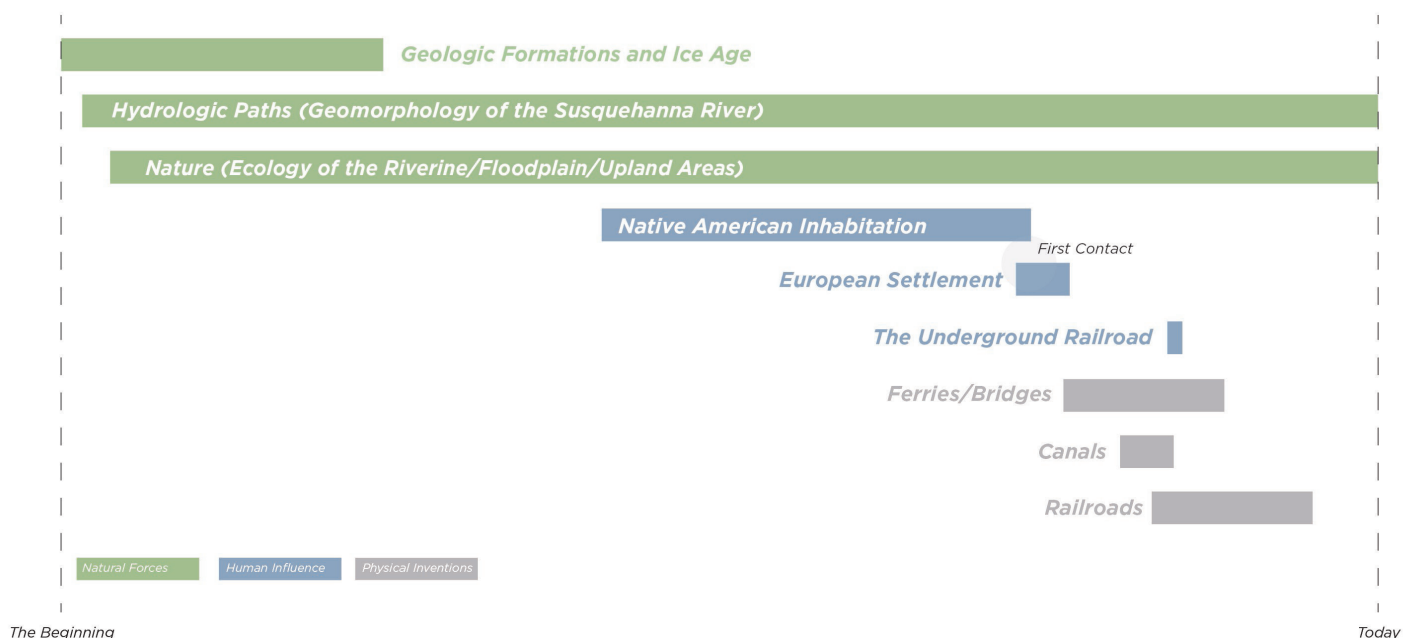
Columbia's River Park is one of the most culturally and historically significant sites in Central Pennsylvania and the Lower Susquehanna River Valley. Early indigenous cultures such as the Shenks Ferry people or later Native American cultures such as the Susquehannock made their summer residence along the River's banks at the very site of River Park. Trails for fishing, hunting and commerce were developed along the River's edge and nearby ridge tops and became important travel routes connecting nations and important resources such as soapstone, waterfowl and fish. Because the River's bottom becomes shallow and its flow slows as it approaches River Park, the site has historically been an ideal location to ford the River – either by ferry or bridge. The canals and the railroads of the 1800's then followed and traversed River Park. It is these types of activities that drove modern development found today in Central Pennsylvania's towns and industries.

However, the historical and cultural import area of the place is based on a host of circumstances related to the region's extensive natural resources and the awesome power of nature that shaped the region's landscape and the River itself. Unfathomable geologic and hydrologic forces created the ridge formations where Chickies Rock County Park is located. The gradual ascent where Columbia Borough currently sits, and, most notable, the river valley chiseled into existence by the brut force of the glacial period's abundance of ice, water and sediment.

The Phase III planning-design process focused on uncovering and understanding the natural, historical and cultural stories or influences of the place as well as the circumstances that characterize or animate River Park the most. A significant effort to research historical archives, to interview historians and knowledgeable persons, and to overlay the various 'tapestries of time and events' has been undertaken. This effort is critical to understanding the special stories of the place.

Subsequently, the six most consequential stories have been used to not only inform or shape the Master Site Development Plan's overall design but to give "soul, spirit and richness" to the specific features and improvements recommended as part of Phase III future development.

The following are brief abstracts of the six stories. They're presented in a chronological sequence from earliest to most recent. This presentation illustrates how the stories actually overlap and interconnect. It's the weaving of the stories and their inter-relationships that produces a unique tapestry that cannot be replicated in its entirety anywhere else!





### Natural History

The Susquehanna River Watershed drains about 27,000 square miles of New York, Pennsylvania, and Maryland until it reaches its ultimate outflow into the Chesapeake Bay. The Susquehanna is one of the oldest existing rivers in the world, being dated to a period between 320 and 340 Mya. The river is older than the mountain ridges through which it flows. Its bed had already been formed when the ridges that flank the River today were created as uplifts. These uplifts were the result of Africa (as part of Gondwana) slamming into the northern part of Euramerica. Chickies Rock, for instance, was formed as part of one of the uplift events.

Over tens of millions of years, wind and rain whittled away miles of mountain rock and soil, washing it toward the Atlantic Ocean. The final major transformation came during the Ice Age. Mile-high ice sheets covered much of the upper Susquehanna River watershed. As the glaciers melted, they sent massive amounts of water and eroded sediment downstream. The flows most likely were spectacular and at times would have made the River hundreds of feet deep.

Despite the on-going geologic changes, the River's ecological resources have been abundant and an essential element to the advancement of every culture that has lived within the river valley. Shad, ducks, oyster beds, river grasses, oak/hickory/buttonwood trees are species indigenous to the River's ecosystem and represent bounties exploited by all cultures throughout time. Petroglyphs found 15 miles south of Columbia, tell the story of the River's importance to the Native Americans.



### Native American Cultures

The earliest known culture residing near or along the Susquehanna is the Shenks Ferry people (dating to a period between 550-800 AD). Their inhabitation began the Late Woodland Period and spanned to 1500 AD when European settlement of Pennsylvania began. The Shenks Ferry people lived in village-like settlements composed of 50 to 60 family homesteads protected by stockade structures. They fished, hunted and farmed. The nearest known village is situated about 12 miles downstream from River Park. This village is centered in a 23-mile stretch of the Lower Susquehanna where the highest concentration of known petroglyphs in the northeastern United States exists. In this stretch, a total of 10 sites and 1,000 carvings can be found.

Later, non-indigenous peoples such as the Susquehannock and the Shawnee nations began to settle in the immediate vicinity of River Park. In fact, when the first Columbia settlers arrived in 1726, a Shawnee village with 20 to 30 wigwams already existed in the area. These villages were a hub of activity and included the production of tools made from soapstone/steatite, harpoons made from bone, celts, woodworking tools and leather articles. Stone cobble was harvested from the River and used to grind and process corn, beans and squash along with tobacco and other plants.

Along with the Native American villages, the Columbia area was traversed by numerous Indian Paths. The Paxtong Path passed through Columbia as it meandered northward to Sunbury. The Great Minquas Path connected to the Paxtong Path just south of Columbia and made a connection to the Philadelphia-Chester area. The Great Minquas Path was historically used by the Susquehannock as a commerce route to Dutch, Swedish and British trading posts constructed along the Delaware River. There, the Susquehannock traded furs and beaver pelts for metal, food and other goods.

### Ferries and Bridges

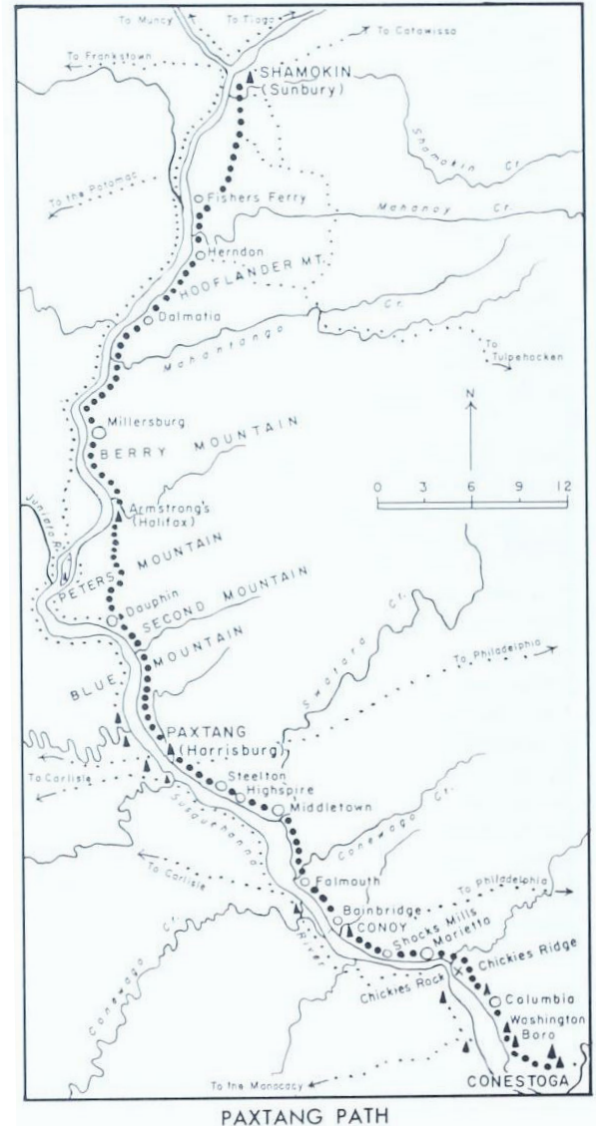
John Wright was born in Lancashire, England in 1667, the place where the Society of Friends (commonly known as the Quakers) began in the 1650s. John Wright and his daughter Susanna settled in Columbia in 1726, the same year that a few other families built residences in the area. Wrights Ferry went into operation around 1730 and connected Columbia to the western shore of the Susquehanna River. The town of Columbia wasn't laid out until 1788 but rapidly became a point of trans-shipment for produce and lumber products. The success of the ferry led to the construction of numerous mills (grist, saw and plane), foundries, warehouses, tanneries and places to pile lumber.

In addition to the Wrights Ferry, there have been six bridges constructed in Columbia across the Susquehanna River – all of which have landed in River Park. The river span at the Park is just over one-mile in width. The first bridge was erected in 1812\4 and lasted about 18 years. It was located near the northernmost boundary of River Park (near today's US Route 30 crossing) and consisted of 30-covered spans which made it the longest covered bridge in the world. The bridge, operated with a toll, was open to horse, wagon, buggy and livestock traffic. The second bridge was constructed in 1834 near the southern boundary line of the Phase III site. This bridge, also constructed as a covered structure, was purposely burnt in 1863 by Union militia in an effort to stop the advancement of Confederate troops during the Civil War. Remnants of the bridge's piers and abutment walls are still readily visible and accessible from the Phase III site. The third bridge was built as a covered bridge as well and was placed on the piers and abutment walls of the second bridge. This toll bridge lasted from 1868 to 1896 when it was destroyed by a hurricane. Finally, the fourth bridge, erected by the Pennsylvania Railroad in 1897, was not built as a covered structure. Rather, the bridge was built as an "iron bridge" and was largely used to accommodate rail traffic. It was built on the same piers and abutment walls that the previous two bridges were located on and was purposely dismantled in 1963.

### Canals

By 1820, the Pennsylvania Main Line of Public Works had been constructed to link Philadelphia and Pittsburgh with canals and rail. The Pennsylvania Canal was essential to Commonwealth's growth in commerce and was needed to remain competitive with the ports of New York City and Baltimore.

The Eastern Division of the canal was built in 1833 along the eastern edge of the Susquehanna River and stretched 43 miles from Columbia to Duncan Island. The Eastern Division had 14 locks and re-entered the





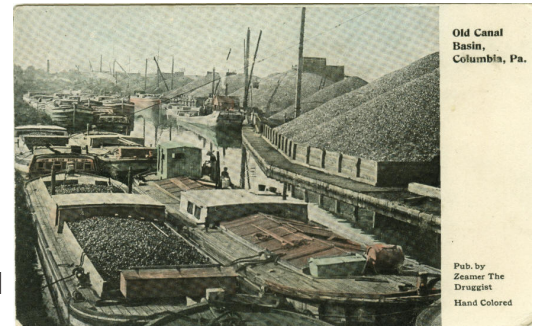
River near the existing abutment wall situated in the Phase III site. Consequently, a major portion of River Park was at one-time used by the canal or neighboring industries.

A second canal, the Susquehanna and Tide Water Canal, was constructed on the west bank of the Susquehanna and extended to Baltimore. The two parallel canals were interconnected by a tow path on the second and third bridges that landed at Columbia. The entire canal was sold to the Pennsylvania Railroad in 1857. Some sections, including the one in Columbia, operated into the early 1900s.

### Railroads

In addition to the region's canals and bridges, several railroads were developed and served Columbia. The earliest and one of the first in the United States, the Philadelphia and Columbia Railroad (P&CRR), was completed in 1834. P&CRR functioned as the eastern leg of the Pennsylvania Canal and was originally operated with horse-drawn railcars.

The Reading and Columbia Railroad (R&C) was chartered in 1857 and stitched a path from Reading southwest toward Columbia. The charter also enabled R&C to purchase the bridge over the Susquehanna at Columbia. The project was the brainchild of Joseph Konigsmacher, who owned the Ephrata Mountain Springs Hotel and wanted a railroad to bring visitors to his establishment and develop communities in northern Lancaster County. Construction began in 1861, but was slow as the Civil War caused a lack of manpower and materials. During the war, Union leaders, worried of Confederate naval attacks on northern ports, supported the Reading and Columbia as a more secure inland passage from New York to Washington. However, government support waned when the Union's naval ships successfully defended ports. Then in 1863, the bridge across the Susquehanna was burned to prevent Confederate troops from entering Lancaster County. In the few days between the bridge burning and the Battle of Gettysburg, the railroad launched operation between Columbia and Ephrata.



The setbacks of the Civil War caused some stockholders to fear the railroad would fail. In 1864, they offered their shares to the Philadelphia and Reading Railroad, an established company that began construction on its line in 1833. The route to Columbia became the Reading the Columbia Division of the Philadelphia and Reading Railroad.

A third railroad, the Pennsylvania Mainline provided service between Philadelphia and Harrisburg; and a third railroad, the Enola Low Grade Freight Line, delivered freight to towns and industries between Enola and Parkesburg. In 1857, the Pennsylvania Canal was purchased by the Pennsylvania Railroad. Rail lines eventually replaced the locks and canal basins throughout the Commonwealth. Between 1900 and 1940, the Pennsylvania Railroad filled in the abandoned canal sections and basins that were situated in River Park and expanded its railyard. Today, the railyard and mainline tracks (operated by Norfolk Southern Railroad and situated immediately north of River Park) remain in place and are heavily trafficked corridors that tie the Midwest and East Coast markets together.

### Underground Railroad

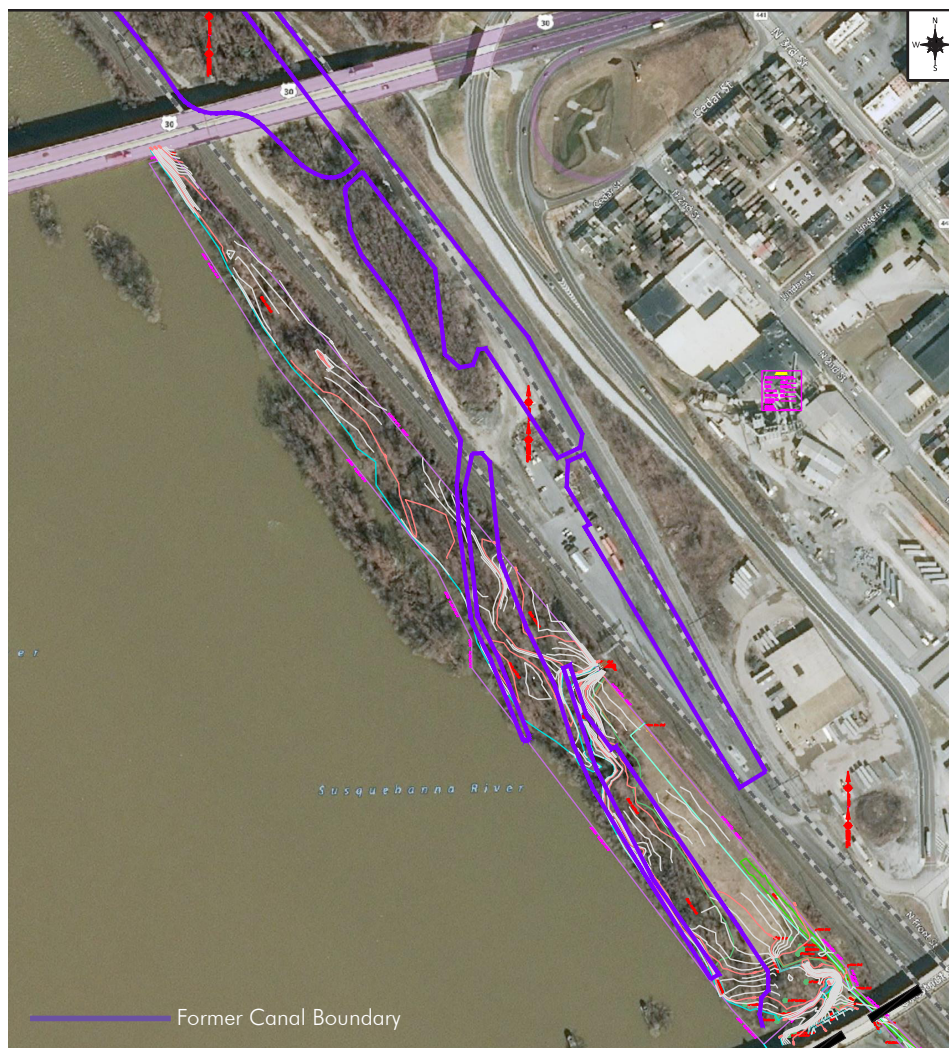
The final story that characterizes River Park and Columbia was the operation of the Underground Railroad (UGRR). The UGRR was a system of people who assisted slaves attempting to flee slave-holding states in the South. Slaves attempted to migrate to northern free states or other locations outside the United States. In some locations, the UGRR provided ad hoc, unplanned assistance and in other places it was highly organized and structured in its means and methods of transport. "Conductors" guided the slaves who were hidden in "stations," "safe houses," or "depots" which were operated by "stationmasters." When stations, safe houses or depots weren't available, forests, caves, islands and riverbanks could be used to hide. The routes followed

natural and man-made transportation features like rivers, canals, roads, trails, and ferry crossings. The conductors and stationmasters were typically connected by family or faith who lived about 10 miles apart, the distance one could travel overnight on foot or by wagon.

Columbia was uniquely situated to be an important stop on the UGRR. The town was settled in 1726 by Quakers who eventually adopted an anti-slavery stance. As Columbia and its ferries, canals and railroads were developed, the movement of slaves became commonplace. Additionally, Columbia is located less than 30 miles from Maryland, which was a slave holding state until 1864.

Several prominent citizens played important roles in the UGRR, including members of the Wright family and individuals such as Stephen Smith and William Whipper. The current Phase I and II site is the previous site of the Smith and Whipper Lumber Yard. These citizens were able to use their assets, which included railcars, canal boats and a steamship, to assist escaped slaves along their journey to freedom. They would move slaves by boat to Pittsburgh, or by railcar or lumber wagons to safe houses in Philadelphia. It is reported that they fabricated special railcars with special secret compartments for the movement of slaves along the P&CRR. While no one can estimate how many slaves moved or hid within River Park during their journeys, the Park's juxtaposition at the intersection of ferries, canals, bridges and railroads suggests that River Park was essential to the existence and success of the UGRR.

More detailed and substantive summaries of River Park's important natural, historical and cultural circumstances are incorporated in this report's Appendix.





## 2.3 Existing Site Features and Development Constraints

River Park's Phase III site is characterized by two distinct topographic areas – the Upland and the Floodplain. The Upland consists of a heavily-wooded but invasive infested river edge, an open interior meadow and gravel access road that is used by the Borough Department of Public Works and Norfolk Southern Railroad. The river edge is the land that was created by filling in the former Pennsylvania Canal's outlet channel. The outlet channel in this location was constructed of earthen embankments; no stone or concrete walls were used to form the sidewalls of the canal basin as was built in other locations along the Pennsylvania Canal's Eastern Division. The Floodplain is composed of a slightly undulating area that is situated approximately 20 feet below the average elevation of the Upland. The Floodplain generally stretches from an unnamed tributary that fed the last canal lock chamber (the outfall nearest the upstream end of the Upland meadow) to the property's northern (upstream) boundary beneath the Wrights Ferry Bridge (US Route 30).

Lack of landscape legibility stifles the experience of exploring the Phase III site. There is only one entrance or gateway to the site and once on the property it appears to be abandoned land with a densely overgrown river edge. Visibility to the Susquehanna River is limited to the area surrounding the historic bridge crossing (the remnant bridge piers and abutment walls).

Illustrated on the following pages are a series of site analysis exhibits that provide graphic descriptions of the key site features and issues identified during the project's planning and data collection phase. The analysis exhibits document both the quantitative facts identified through research and analysis (for example the steepness of site's river banks) and qualitative observations obtained during a battery of field visits.

### Quantitative Analyses

Existing conditions related to property ownership, historic and cultural resources, Borough vehicular and pedestrian access, paving, slopes, vegetation and utilities present physical parameters or conditions that visible elements or remnants from the site's past use/history. Also denoted in the site analysis exhibits are several important regulatory constraints. These include the location and extent of the 100-year floodplain, the 500-year floodplain, a Norfolk Southern Railroad easement and the Columbia Borough river setback.

- The normal level of the Susquehanna River is 227' ("dry" weather) and could exceed 234' during a wet weather event.
- Finally, a 75' river setback from the natural water line of the Susquehanna River has been adopted by the Borough. This setback restricts the construction of structures. However, it's unclear in the Borough ordinances what constitutes a structure. The Borough's code enforcement officer has tendered an interpretation of the ordinance that a structure must have walls and a roof. Subsequently, walls and docks are not to be considered a structure and not constrained by the river setback ordinance requirement.

### Qualitative Observations

A host of design influences that haven't been documented through past surveys or reports, but will shape any question use of the site were documented as a complement to the quantitative analysis. These influences focused on the ease of water access, areas of extensive ice scour, favorite fishing spots, vegetative significance or infestations of invasive plant species as well as perceptual qualities of the place. These qualities include ambient noise levels and viewshed quality. While the observations are qualitative in nature – meaning no standardized metric exists to use as a reference - the observations are very important to framing and assessing issues that may need to be addressed or opportunities that the future planning-design activities should try to leverage or exploit.

DEVELOPMENT RESTRICTIONS  
LEGAL AGREEMENTS/PUBLIC POLICY

- LEGEND
- RIVER SETBACK (75')
  - CREEK SETBACK (50')
  - BUILDING SETBACK (0' FRONT, 10' SIDE AND REAR)
  - BRIDGE RIGHT-OF-WAY
  - NFS ACCESS EASEMENT (12')
  - PARCEL BOUNDARIES



FLOODPLAIN  
SITE OBSERVATIONS

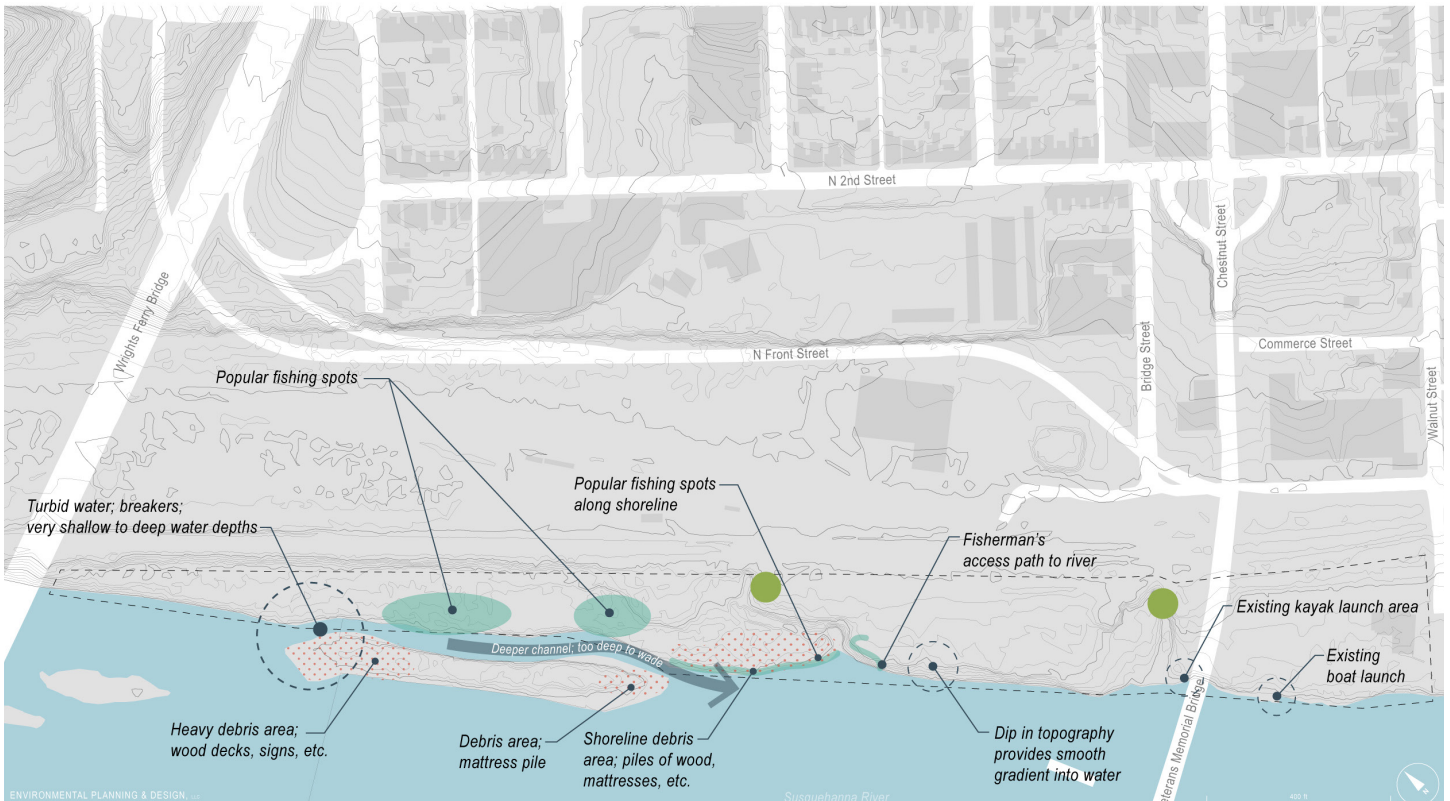
- LEGEND
- FLOODWAY
  - 100-YEAR FLOODPLAIN
  - 500-YEAR FLOODPLAIN





## HYDROLOGY

### SITE OBSERVATIONS



## HISTORIC AND CULTURAL RESOURCES

### SITE OBSERVATIONS

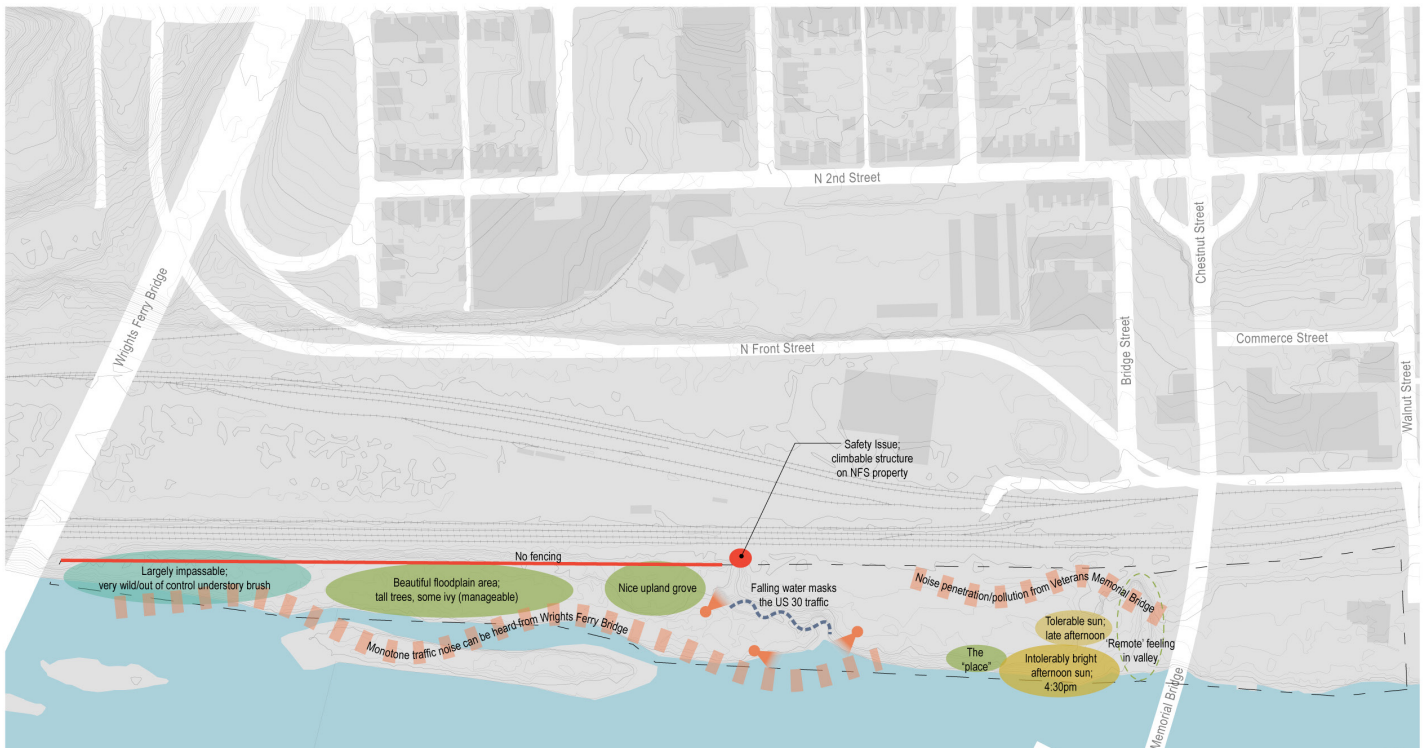


## PERCEPTUAL QUALITY

### SITE OBSERVATIONS

#### LEGEND

 Fantastic Views



### Utilities

The physical parameters of the site, including regulatory constraints, landscape, and parcel shape, have limited the development of Phase III including the establishment of utility service, either to the area or through the area. Since the Phase III area is bounded to the east by the Norfolk Southern Railroad, to the west by the Susquehanna River, and north by US Route 30, the only practical location for extension of utility service is from the south. Utilities in this area are within or adjacent to the right-of-way of Walnut Street and terminate at or near the existing Columbia Crossing River Trails Center. Domestic water and sanitary sewer service is located within the Walnut Street “extension” and terminate west of the Trails Center. Overhead utilities, consisting of electric and communications, terminate at the intersection of the Walnut Street “extension” and the driveway to the Trails Center. Based on the information available and a cursory review of public records, no easements associated with these utilities have been provided. However, it is reasonable to assume that the existence of these utilities indicate the presence of a right-of-way either conveyed or implied. As a result, the location of the existing utilities as well as associated rights-of-way and/or easements may be critical to the development of Phase III, not only because of the challenges with the extension of utilities, but with any encumbrances that they, or subsequent easements, or utilities may present.

Although not a public utility, the site is impacted and encumbered by the existing Norfolk Southern rail line immediately to the northeast of the project area. The rail line encompasses three tracks which cross Walnut Street “extension”. In addition, Norfolk Southern has a variable width access easement which allows for ingress, egress, and regress from the Walnut Street “extension” to a maintenance gate located in the Phase III area. This easement and access must be maintained, and therefore integrated into the Plan. These items present challenges to the use of the existing Trails Center which must be considered and mitigated with the increased usage spurred from the development of Phase III.

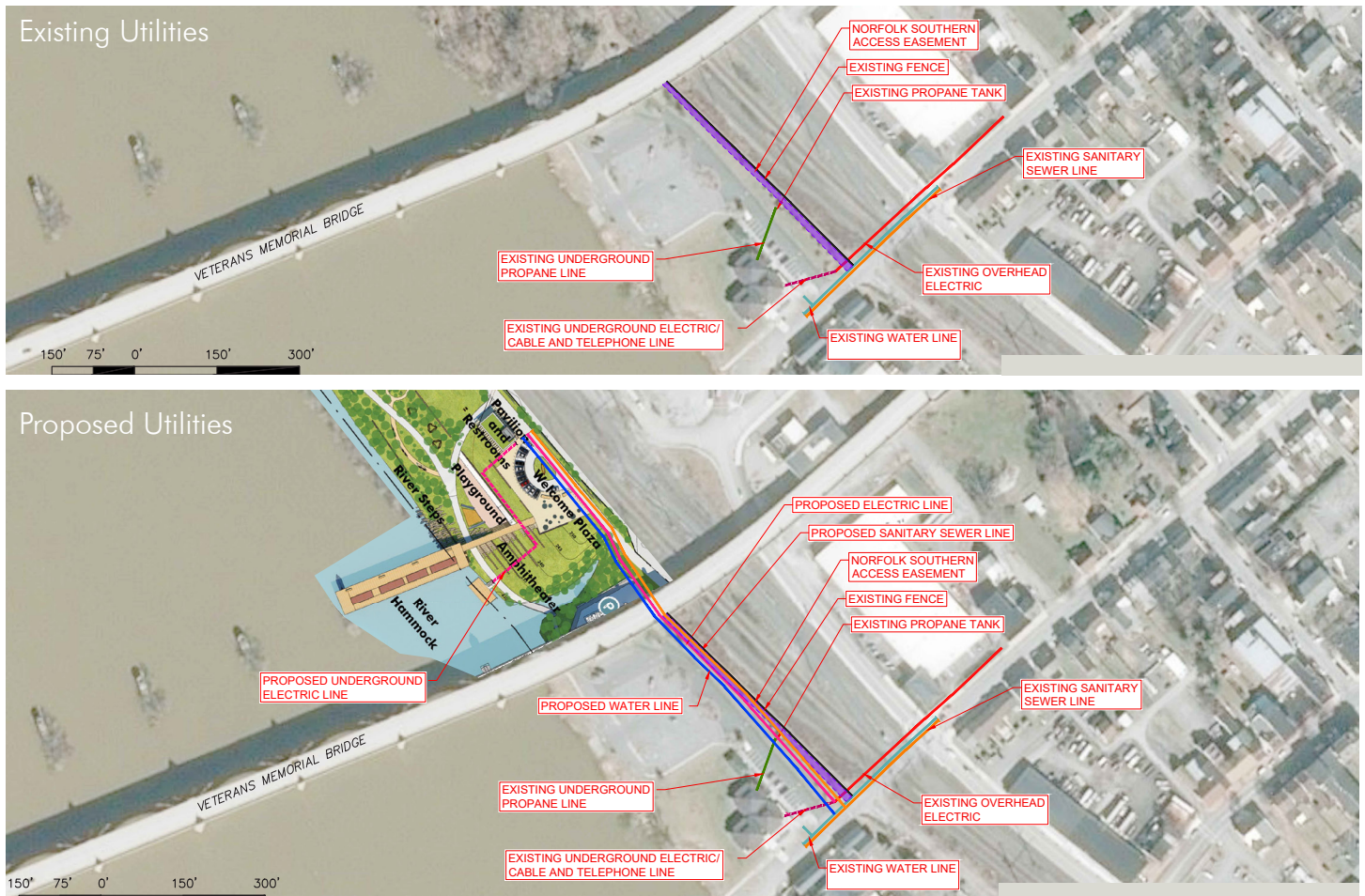


These challenges are outlined below:

- Provide and maintain a safe railroad crossing. Currently, the existing crossing is fully gated with operating lights.
- Provide and maintain a defined travel path for vehicles and bike/pedestrian traffic. The defined path for bike/pedestrians shall be of appropriate surface and cross slope.
- Maintaining the existing access easement through the lands of the existing Trails Center.

Outlined below are the substantial “take aways” regarding the site utilities and encumbrances:

- Existing utilities do not currently exist in the Phase III area. As a result, any extension of utilities as required by adoption of the master plan will need to be installed in an initial phase.
- Public utilities are located in Walnut Street adjacent to the existing Trails Center. As a result, any Phase III elements requiring utility service will be tethered to the utility systems serving the center.
- Extension of utilities to serve the Phase III area will disrupt the existing Trails Center.
- The Norfolk Southern railroad creates an encumbrance on the current use and future development of the River Park. Specifically, the access easement must be maintained and user safety must be implemented for the crossing of the existing tracks.



## 3. COMMUNITY ENGAGEMENT

### 3.1 Overall Engagement Approach

The community vision for River Park formally began to be articulated in 2003. This was the first time that Columbia Borough recognized the importance of the Susquehanna River outside of its historic role as a transportation corridor and a place for industry. Rather, residents began to view the river edge as a “green lifeline” for the community – a place for recreation, ecology and cultural celebration. Since that time, various plans, studies and developments have occurred, including the 2004 Columbia Downtown Development Corporation Public Input & Visioning Session and the Columbia River Park Master Plan in 2006.

In February of 2018, Columbia Borough engaged a Design Team consisting of Environmental Planning & Design and its subconsultants (H. F. Lenz Company and Christine Davis Consultants) to work with the community in the preparation of a Master Site Development Plan for the River Park’s Phase III site. At the inception of the planning-design process, the Borough’s appointed steering committee and the CRPAC provided the Design Team with their aspirations, goals and design principles for the Plan; this group has continued to be the primary “sounding board” for the project. However, the Borough and the CRPAC endeavored to integrate an extensive community engagement strategy into the overall planning-design process. The past development success of River Park can be attributed to the active interest and participation of the at-large community. It is essential that the community continue to be intimately involved in the planning-design process and that their wants and needs be woven into the design where practical.

The CRPAC, in an effort to garner community input, published a community-wide survey very early in the planning-design process and a follow-up concept questionnaire at the project’s midway point. They also hosted a community-wide open house and facilitated two (2) public meetings (July 2018 and November 2018). Throughout the planning-design process, the CRPAC held eight (8) review meetings where at-large members of the public were invited to attend and to share their thoughts and comments. It is anticipated that the CRPAC will provide Borough Council with a set of recommendations prior to the Council’s official action to adopt the Master Site Development Plan, and that the CRPAC will be asked by Council to oversee the implementation of the Phase III improvements.

In addition to the various community-wide meetings and surveys, the CRPAC and the Design Team have conducted numerous stakeholder focus groups and interviews, as well as technical coordination meetings, in order to clarify issues and opportunities, understand key technical parameters and refine design concepts. These meetings included historians, business owners, community representatives, trail advocates, environmentalists and key staff members from the Borough and Susquehanna Heritage. Finally, the Borough and Susquehanna Heritage maintained a continuous flow of information regarding the project throughout the duration of the process. This information was posted through various websites and social media pages and published in the Borough’s periodic newsletters. Finally, several local news outlets, print and video, provided market coverage before and after the public meetings.

Brief summaries of the various community engagement events and the important take-aways from the outreach effort are provide on the following pages. Detailed reports of the Community Survey and the Concepts Questionnaire have been incorporated in this document’s Appendix.



### 3.2 Community Survey

The CRPAC and Borough Administrative Staff issued a 14-question, on-line Community Survey in April 2018. The survey was made available to the general public and promoted as part of two separate Borough newsletter editions. The Community Survey, included in its entirety in the Appendix of this document, obtained general demographic information about the respondent, their familiarity with River Park as well as typical visitation patterns. The Community Survey also asked respondents for their 'dream or aspirational' suggestions of how to improve the Phase III site in the future. The suggestions were organized into active types of recreational uses and passive uses. A final set of questions inquired about the respondent's preferences for incorporating historic, cultural, environmental and entertainment features or elements in to the Master Site Development Plan.

With approximately 700 responses (which is about 1/6<sup>th</sup> of the Borough's total households), the public input was significant and used extensively throughout the remainder of the planning-design process. The predominant responses for new active and passive activities focused on the need/desire for fishing piers, playgrounds, River overlooks, a pedestrian bridge across the Susquehanna River and additional trails. The most popular ideas for historic, cultural, environmental and entertainment features included bridge pier restoration, canal restoration, live outdoor music/performance programming, picnicking, stream restoration and native plant gardens.

### 3.3 Public Meeting #1

The CRPAC hosted the first Public Meeting in July 2018; nearly 60 persons attended the event that was held at the Columbia Crossing River Trails Center. During the meeting, the Design Team presented the results of the Community Survey as well as the key observations/conclusions of the battery of existing conditions studies and the initial concepts for the Phase III park design. Three concept alternatives were showcased and used as means of garnering the public's opinion for design character, development scale and types of activities.

Based on the open discussion, the general public appeared to support the direction the project was headed and made a few suggestions regarding programming and activities. Additionally, several attendees noted that more emphasis on history and culture should be made and more importantly that the view point be broadened to include the river valley's natural history/ecology and the early cultures that resided in the area prior to their contact point with the European settlers.



### 3.4 Riverlands Trail Festival

Members of the CRPAC (pictured to the right) encouraged trail users and visitors to participate in three (3) exercises to indicate their preferences of different park amenities with colorful stickers. Three (3) boards of images were displayed and each board had a different focus. The first board focused on important historical and/or cultural elements of Columbia Borough. Board 2 asked participants to give their thoughts on their favorite places and/or secret spots within Columbia River Park. These images included seating areas, fishing holes, boat ramps and other areas within the park. The third board focused on new/proposed elements for the master plan design, including play structures, seating opportunities, climbing nets, water access and walking trails. The feedback from these exercises was used to influence subsequent design intentions and concepts.



### 3.5 Concept Questionnaire

A 9-question, online Concept Questionnaire was posted and advertised in late Summer/early Fall of 2018. Differing from the previous survey, the questionnaire focused its attention exclusively of the three concepts that were presented at Public Meeting #1. The questionnaire was structured in a manner to allow respondents to share their support or criticism of each concept alternatives and then weigh-in on which (if any) concept was their preferred for the CRPAC and Design Team to further refine and expand. Illustrations of the concept alternatives were made apart of the questionnaire itself. A full summary of the concept questionnaire is included in the Appendix.

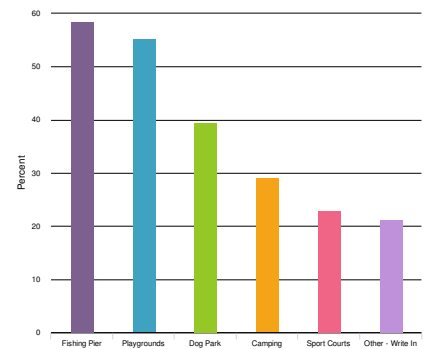
Nearly 75 persons participated in the questionnaire. The predominant responses obtained by the questionnaire either reiterated the community support/desires identified earlier in the planning-design process or gave more detail for potential new features/elements. The top responses included:

- a better connection to the Northwest Lancaster County River Trail
- the re-use of the historic bridge pier for an overlook
- the need for restroom/comfort facilities situated within the Phase III site
- additional water access
- a 'front porch' and swings
- an amphitheater and stage for performances

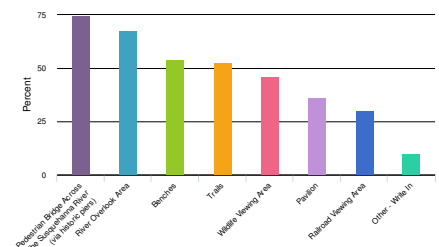
### 3.6 Bridge Bust Outreach

A pop-up style community engagement event was held in conjunction with the SVCC's annual Bridge Bust in October 2018. With more than 5,000 estimated visitors residing through Central and Southeast Pennsylvania, Maryland and Virginia, the Bridge Bust event gave the Design Team and some CRPAC members the opportunity to have casual conversations about River Park and to share ideas as per the three concept alternatives. More than 350 individuals were met with over the course of the 8-hour event. While the event didn't collect specific or quantitative input from the public, it provided a tremendous forum to make individuals aware of the project and to get a 'temperature read' on the appropriateness of the ideas and concepts developed to date.

6. In terms of ACTIVE RECREATION, what would you like to see added/improved at Columbia River Park? (Please select ALL that apply)



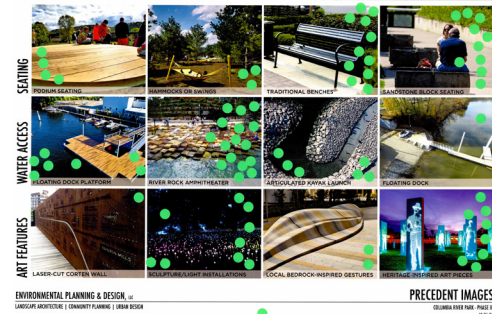
7. In terms of PASSIVE RECREATION, what would you like to see added/improved at Columbia River Park? (Please select ALL that apply)





### 3.7 Community Open House

The Community Open House was a multi-project event held in October 2018 at the Borough's historic Market House. The Open House highlighted several current or on-going projects in the Borough (Phase III River Park was one such project) and was structured as an informational meeting for residents. With more than 50 attendees, the Design Team provided a brief presentation regarding the conclusions of the planning-design process thus far as well as the three concept alternatives. A portion of the Open House permitted the Design Team to casually talk with community members and facilitate a 'sticker'-style visual preference exercise. The exercise used posters of example park improvements and asked attendees to indicate their preferences based on a specific set of topics or themes. The themes included: playgrounds, gardens, seating, art and water access.



### 3.8 Public Meeting #2

The CRPAC hosted the second Public Meeting in December 2018; more than 50 persons attended the presentation which was again held at the Columbia Crossing River Trails Center. More than half the meeting attendees did not attend Public Meeting #1. The Design Team presented the integration of the preferred features/elements of the three concept alternatives and the proposed Master Site Development Plan. Architectural renderings, simple diagrams and precedent images were used to further explain or illustrate the design details. Following the formal presentation, a lengthy open discussion was facilitated by the Design Team and supplemented by the comments of the CRPAC members who were in attendance.



The general public expressed strong support of the proposed Master Site Development Plan. Questions largely focused on operations and maintenance and a few suggestions were made relative to expanding the connections between Phase III and the previous phases as well as the improved connection to the Northwest Lancaster County River Trail.



## 4. DESIGN

### 4.1 Goals, Principles and Design Concept

The Phase III Master Site Development Plan represents the culmination of a year-long planning-design process that entailed discovery, dialogue and visioning. While the process delved into a variety of issues and fused together the creativity of a multitude of disciplines, the heart and soul of the process was the committed CRPAC members and the extraordinary set of organizations and persons knowledgeable about the Borough and the Phase III site's historical context. The perspectives and imagination of those actively involved throughout the process allowed the final Plan to surpass the project's initial expectations.

The design described by the following Master Site Development Plan is: a) reflective of the community and the place; b) daring in its concepts; but c) achievable in its details. The Plan provides a road map towards a world-class, well-integrated community park/regional destination. This destination is a worthy anchor for the dynamic and inviting Northwest Lancaster County River Trail/Columbia Crossing River Trails Center, an incredible gateway for the Borough, and a focal point for new recreational, cultural, historical and economic opportunities.

The CRPAC and the Design Team established a set of central planning goals and design to steer the Phase III planning-design process as philosophical guide posts. These guide posts were used to keep CRPAC's day-to-day decisions regarding broad-brush planning conventions and detailed design solutions true and on-point. The goals and principles represent the shared commitment of the project stakeholders to create a visionary riverfront development noted for its celebration of the place and its design excellence.

Goals describe the high-level, over-arching values or achievements that a master plan should attempt to fulfill. Principles are related to fine-grain issues or opportunities. They are articulated as simple statements of what the CRPAC and the Design Team wanted to do, or avoid doing, as the detailed design was created and refined. Principles can relate to more than one goal, but should not relate to all goals because they're issue-oriented. The Planning Goals and Design Principles as adopted include:

#### Planning Goals

1. Develop a cohesive master plan that complements and integrates the Phase III recommendations with the existing context, activities and investments made in the River Park's previous development phases.
2. Manage, conserve and celebrate the key natural, cultural and recreational resources found within River Park.
3. Create a memorable and "cool" world-class "front porch" for Columbia and the greater Lower Susquehanna Valley.



4. Use the River Park's natural, historical and cultural past to create inspirational, interactive or immersive educational and recreational experiences.
5. Provide year-round activities and amenities that are inter-generational, multi-dimensional/multi-purpose, universally accessible and fiscally sustainable.
6. View the design's safety and security considerations equal to the aesthetics and the "fun factor."
7. Improve the connectivity and accessibility between the River Park, the Northwest Lancaster County River Trail and the Borough's downtown and residential neighborhoods.
8. Enhance access to the river's edge for contemplation and enjoyment or passive recreational pursuits.

## Principles

- Turn lemons into lemonade – transform challenges into opportunities
- Take advantage of the site's western exposure; temper the negative effects of the surrounding highway noise
- Place visitors within a story that gradually reveals itself to make the place come alive
- Plan a legible and safe hierarchy of multi-use/single use paths and trails
- Design for the pedestrian first, the cyclist second, the car third and a commercial truck last
- Provide a vehicle-accessible route that traverses the length of the Phase III site for maintenance, evacuation and policing
- Integrate a diversity of seating types, arrangements and locations
- Create human-scaled spaces that are visible from other areas to enhance comfort and safety
- Develop design solutions that solve/address multiple development challenges
- Showcase the remaining vestiges or remnants of the site's past uses/histories
- Respect the rise and power of the river currents and the effects of its ice scour
- Face and address the Susquehanna River; and
- *"Let the new be subdued so that the old can be bold!"*

## Design Concept

As described in Part 2, Columbia Borough and River Park are steeped in historical and cultural significance. Their reputes, in many cases is of regional or national significance, provides a set of unique stories that can't be told anywhere else! A selection of the site's key historical and cultural aspects were identified by the community (highlighted in Part 2 of this document) and provide the basis for the Phase III Master Site Development Plan's design concept. A design concept is a foundational idea that gives a design its depth, meaning, direction and in some cases its physical form and composition. A design concept serves to anchor the detailed design work and shapes the recommended design interventions or improvements. A design concept should be summed up as a sentence or short statement that can also be represented visually.

The design concept for Phase III is - *Convergence: Paths, People, Cultures and Time*. The concept recognizes and reinforces that for thousands of years, the Phase III site has been a location where man and nature have intersected and co-existed in harmony and balance. The concept of convergence focuses on the flow of the Susquehanna River, the nearby rock outcrops and river rapids, the storied Native American paths, the industrial-age canals, railroads and industries. Additionally, convergence implies the continuous 'coming together of people, culture and social values.' The melding of paths, people, culture and time typifies both the unique character and history of the place as well as the recommended Phase III Master Site Development Plan.

## 4.2 Development Program and Anticipated Users

Despite the current site's somewhat nondescript character, it presents an important opportunity to expand and/or complement the past investments made by the Borough and the Commonwealth as part of the River Park Phase I and Phase II developments. The regional juxtaposition, the high level of visibility from the surrounding road system and the close proximity to the Northwest Lancaster County River Trail, make the Phase III site an invaluable location for additional investments in recreational, cultural and environmental amenities and education.

The development program established for the Phase III site is detailed below. A development program refers to the 'wish list' of land uses, activities or amenities that a Master Site Development Plan should accommodate or 'fit' into a specific piece of land or property. In other words, a development program itemizes the elements of development to be incorporated into a Master Site Development Plan without determining the specific geographic location for those elements nor the inter-relationship/interconnectivity between the various elements. Where possible, a development program should identify the number or type of user that is expected to be drawn to a particular design element as well as the functional needs that the element possesses.

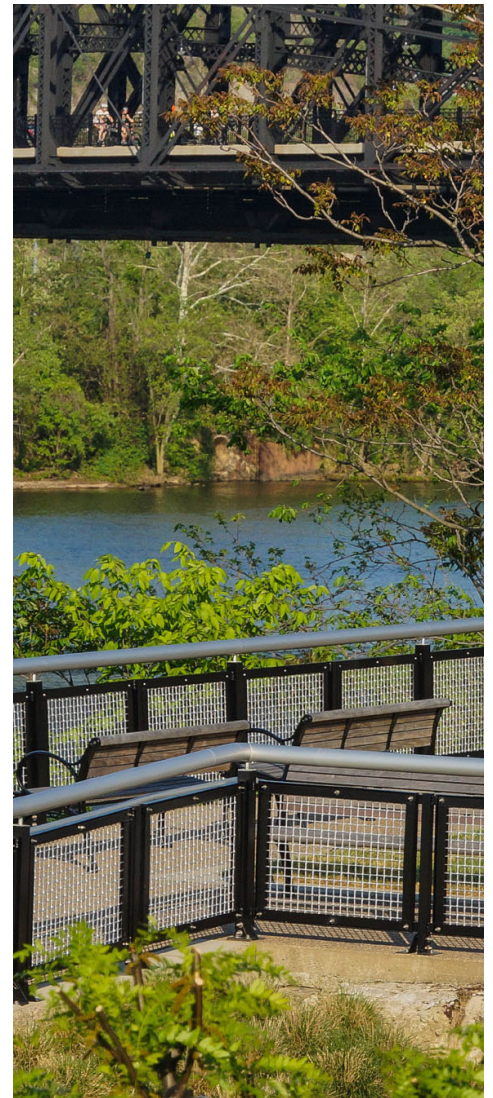
### Development Program Summary

- An outdoor amphitheater able to accommodate appropriately 700 to 1,000 persons; constructed with a mixture of fixed seating and lawn areas; 200 to 400 amp electric service is needed
- A stage sized to accommodate a band or troupe of 8 to 10 performers inclusive of stage sets and equipment
- A pavilion or sun shade suitable for special event rentals or everyday un-reserved use; the size and scale should be able to accommodate at least 50 to 100 persons; electric and potable water service is needed
- A small-scale multi-sex restroom facility to supplement the existing facilities situated at the Columbia Crossing River Trails Center (2 or 3 comfort fixtures per sex); electric, potable water, sanitary sewer, communications)
- Heavy truck access for Norfolk Southern Railroad (in accordance with the existing recorded easement)
- A network of sidewalks and paths that can accommodate multiple modes of traffic (such as pedestrian-only, pedestrian-bicycle only, pedestrian-bicycle-service vehicle and all inclusive low-speed traffic)





- Formal/controlled fishing spots that are easily accessible (at least one additional spot that is universally accessible)
- Environmental education/exploration locations suitable for young children (all of which are universally accessible)
- A walkway along the Susquehanna River (preferable at river level)
- A large natural playground that is universally accessible and incorporates inclusive play features
- Ample seating including swings
- Areas for historical interpretation
- Additional water access points that are easily accessible to pedestrians only
- Water feature for play; should be universally accessible
- A river overlook
- A large lawn area that can be used for spontaneous activities (such as Frisbee throwing, running, etc...) but can be occasionally used for special events (for example craft fairs, community festivals, etc...)

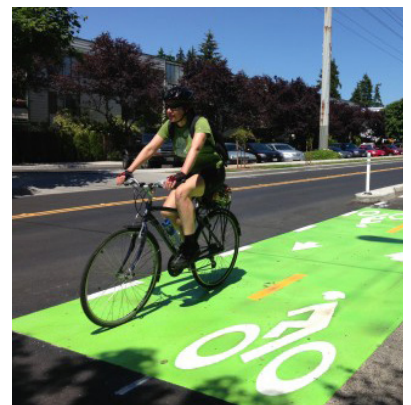


- 10 to 20 additional short-term parking spaces; accommodate users with disabilities and special circumstance users (for example Expecting Moms, Mom or Dad's With Kids, Silver Sneaker Walkers, etc...)
- Group camping area oriented towards short-term visitors arriving by canoe/kayak/bicycle; should be primitive in nature with no utilities or services
- A dog-friendly area; should be primitive in nature with minimal security and no utilities or services

### 4.3 Additional Design Considerations

The design of a public park requires that not only the wants and desires of the community (as described in the preceding Development Program) be accommodated, but that the planning design should consider and assess liability, security, life-safety, mobility and regulatory issues or standards concurrently. To this end, the Design Team and the CRPAC referred to the following documents prior to finalizing the Master Site Development Plan. The primary focus of this review was on universal accessibility, parking standards, restroom fixture counts, and evacuation requirements for 'places of public assembly.' Additionally, representatives from the Borough's Administrative Staff, its Police Department and Department of Public Works were consulted to evaluate and refine the design concepts in light of police/emergency management protocols and maintenance practices.

1. Columbia Borough Zoning Ordinance
2. Columbia Borough Subdivision and Land Development Ordinance
3. 2004 ADA Accessibility Guidelines (ADAAG)
4. Uniform Construction Code (as most recently adopted by the Commonwealth)
5. FEMA Flood Insurance Rate Maps (as most recently published)
6. 2017 National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide
7. Pertinent PennDOT Design Manuals (as most recently published)
8. Crime Prevention Through Environmental Design (CPTED) Guidelines and Best Practices
9. Publicly available railroad-related design manuals





## 4.4 Overall Master Site Development Plan

### Overview

The following Master Site Development Plan outlines a vision for the future development of the Phase III site. The Plan consists of a set of birds-eye planimetric-type drawings and perspective views of the site as well as the recommended connections to the Northwest Lancaster County River Trail and the Borough's downtown (via Walnut Street). The Master Site Development Plan, however, does not provide a set of architectural drawings from which a contractor can build immediately. Functional and structural design issues remain to be studied and detailed design solutions formulated. This should be the next step in the Master Site Development Plan's implementation.

The CRPAC also explored potential connections to an island and the old bridge piers situated in the Susquehanna River. While the island and piers are not a part of the Phase III property and are not located within the municipal boundary of Columbia Borough, they present long-term opportunities for multi-municipal or regional collaboration as well as for creating unique, innovative connections and experiences. The implementation of recommendations such as these will require discussion and dialogue with the neighboring communities of Wrightsville and West Hempfield Township and regulatory agencies such as the US Army Corp of Engineers, the Pennsylvania Fish and Boat Commission, and the Pennsylvania Department of Environmental Protection.

The following Master Site Development Plan is presented as a progression of maps and illustrations because of the overall expanse of the study area and varied scales that the recommendations are best viewed in. The first group of exhibits focuses on the overall study area – from 3<sup>rd</sup> Street to US Route 30; the second group of descriptions and drawings outlines the recommendations for the Phase III site's Uplands area; and the final group of exhibits highlights the recommendations for the site's Floodplain areas.

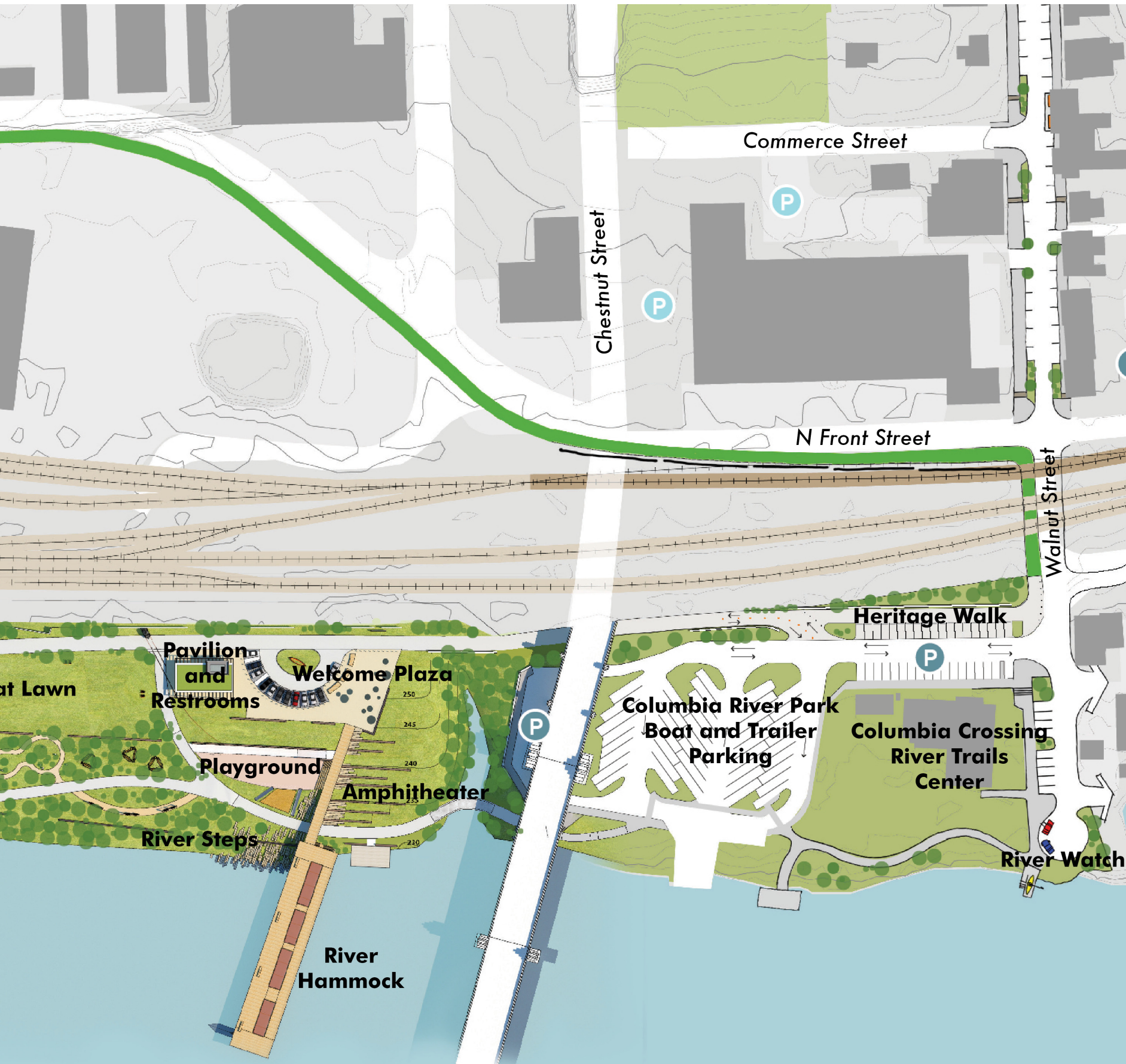
As a result, the CRPAC identified a short-term solution that is depicted in the following graphic. The design continues to utilize an at-grade crossing of the railroad tracks at Walnut Street, but eliminates the two street crossings and the use of the sidewalk. The design recommends shifting a 900 foot long section of the easternmost railroad track approximately 15' west. Within this vacated area, a low retaining wall and a 12' wide paved cyclo-track could be constructed. The cyclo-track would be separated from Front Street (PA Route 441) by a mountable concrete curb and demarcated with PVC pylons. This design greatly improves pedestrian and bicycle safety without the significant costs of elevated structures. Equally important is that the legibility of the how to navigate to the start of the River Trail is much clearer thus minimizing confusion/discomfort for visitors. The design does require additional right-of-way to be obtained from the Columbia & Reading Railroad, but would most likely take less time than the long-term easements.









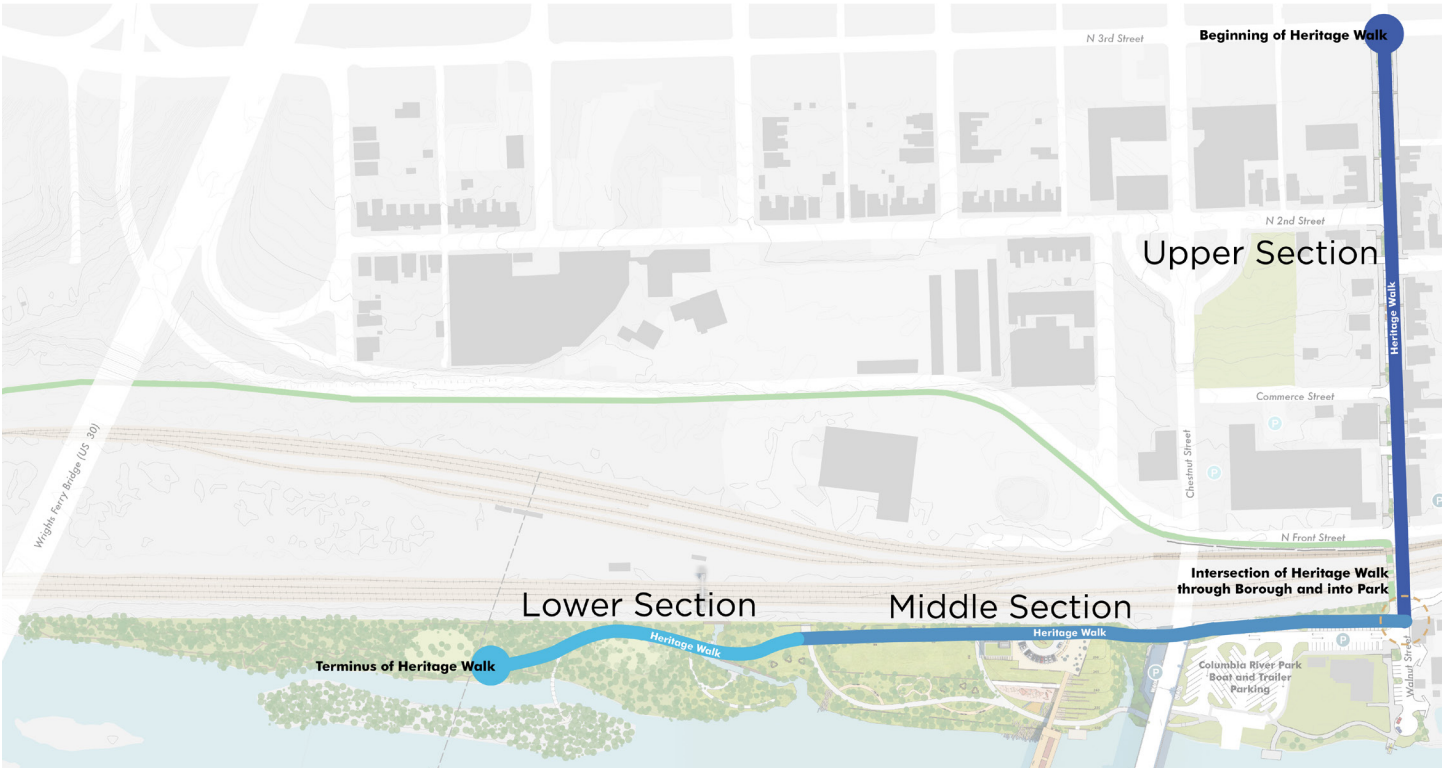




4.5 Phase III Master Site Development Plan – 3rd Street to US Route 30

Heritage Walk

The proposed design’s single common thread or element that spans the entire length of the study area (from 3<sup>rd</sup> Street to the US Route 30 Wrights Ferry Bridge) is the Heritage Walk. The Heritage Walk is envisioned to be a multi-modal facility that provides pedestrians, bicyclists and motorists (in a very limited manner) with a seamless passage from Columbia’s downtown to the Columbia Crossing River Trails Center and onward to the Phase III site’s Floodplain area. The design character and detailed improvements along the Heritage Walk integrate special paving as historical/cultural interpretative signage/kiosks. There are three sections to the Heritage Walk: the Upper section spans from 3<sup>rd</sup> Street to the Heritage Drive Extension; the Middle section extends from the Heritage Drive Extension to northern end of the Lock Wall; and the Lower section stretches from the Lock Wall to the proposed camping area.



Upper Section

This portion of the Heritage Walk follows Walnut Street through a neighborhood that consists of a mixture of land uses and building types. The concept for this section is to highlight the Borough’s most important historical points, people or moments. The primary purpose of this section is to draw downtown visitors towards the Susquehanna River and River Park with a legible and unified streetscape. Along the way (the Upper section is approximately 1,400 feet long) interpretative treatments, composed of special paving bands and bronze/cast iron inscriptions inset into the existing neighborhood sidewalks, inform walkers and cyclists about the community’s rich and memorable past. Its also recommended to insert curbed/edged rain gardens or infiltration cells near intersections or crosswalk areas. The layout of the rain gardens would create ‘neck-downs’ within the street cartway. These areas shorten the length of a crosswalk thereby improving safety and would create landscaped oases along the length of the street.



Middle Section

The Heritage Walk’s Middle Section serves as the gateway to River Park and abuts the existing parking areas near the Trails Center. The concept for this section is to transition from a multimodal trailhead-type design nearest to the Trails Center to a pedestrian-scale and immersive historical/cultural experience along the length of the Phase III Uplands area. Rather than using sidewalk treatments in this section, asphalt pavers are proposed for the ground surface and the erection of an eight foot high Heritage Wall along the northern boundary of the Phase III site. The pavers are placed as a broad 15-16’ wide universally accessible promenade and can accommodate the heavy vehicle traffic/loads that will occasionally traverse the section. The Heritage Wall provides a visual screen and vegetated buffer from the Norfolk Southern railyard as well as a 1,000 foot long canvas to interactively tell the stories about River Park’s past and significance.

Lower Section

The Lower Section begins just north of the Lock Wall and provides access to the Phase III site’s Floodplain area. Given the frequent flooding that occurs in this area, the concept for this section is to create a simple earthen trail or path that is reminiscent of the historic Native American Paths that traced the banks of the Susquehanna. The Heritage Walk in this section will most likely be lightly traveled and will be used primarily by fisherman, birders, photographers, water enthusiasts, etc...



Improved Northwest Lancaster County River Trail Connection

An additional Master Site Development Plan recommendation that falls outside of the geographic boundaries of the Phase III site is the improved connection from the Columbia Crossing River Trails Center to Columbia’s terminus of the Northwest Lancaster County River Trail. While the current connection requires an at-grade crossing, it also involves two street crossings and the use of narrow sidewalk for two-way bicycle passage. The current connection was loudly maligned through the planning-design process and ranks as one of the top priority issues.

Multiple alternatives for resolving the situation were studied. The ideal long-term solution is to construct an aerial multi-modal crossing or “flyover” starting near the Lock Wall and crossing the Norfolk Southern railyard to a touchdown point on the existing River Trail (refer to the Appendix for illustrations). The flyover needs to conform to the ‘double stack’ railcar height requirements for a Class 1 railroad. This long-term design provides the safest, but most costly solution; easements and special approvals from Norfolk Southern Railroad are needed and may take significant time to secure.

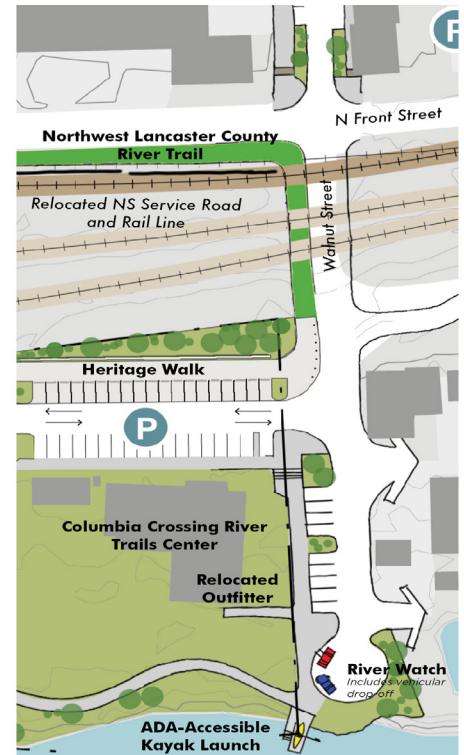
As a result, the CRPAC identified a short-term solution that is depicted in the following graphic. The design continues to utilize an at-grade crossing of the railroad tracks at Walnut Street, but eliminates the two street crossings





and the use of the sidewalk. The design recommends shifting a 900 foot long section of the easternmost railroad track (owned and operated by the Columbia & Reading Railroad) approximately 15' west. Within this vacated area, a low retaining wall and a 12' wide paved cyclo-track could be constructed. The cyclo-track would be separated from Front Street (PA Route 441) by a mountable concrete curb and demarcated with PVC pylons. This design greatly improves pedestrian and bicycle safety without the significant costs of elevated structures. Equally important is that the legibility of the how to navigate to the start of the River Trail is much clearer thus minimizing confusion/discomfort for visitors. The design does require additional right-of-way to be obtained from the Columbia & Reading Railroad, but would most likely take less time than the long-term easements.

The River Watch at the terminus of Walnut Street includes an ADA-accessible kayak launch, a vehicular drop-off and is the site of the relocated kayak outfitter for easier access into the water.



## 4.6 Phase III Master Site Development Plan – Upland Areas

### Overview

The conceptual design for the Uplands area organizes the proposed development into three zones that transition from active-oriented development in the southern or downstream end to passive-oriented zone that centers on the historic Lock Wall. In between, is a multi-dimensional zone that supports active and passive uses or activities, but does not utilize intensive structures or site improvements.

Tying together the three Use Zones is a circulation network of multi-purpose walkways and paths; set within the Use Zones and the circulation network are ten distinct programmed areas or design elements. These programmed areas, which are best thought of as individual spaces or outdoor rooms, are designed for special purposes and activities. They provide diversity to the park design and broaden the offerings and appeal to River Park's have in the long-term.

The following summary describes the design intent and character for circulation network and the ten programmed areas found within the Uplands of Phase III.

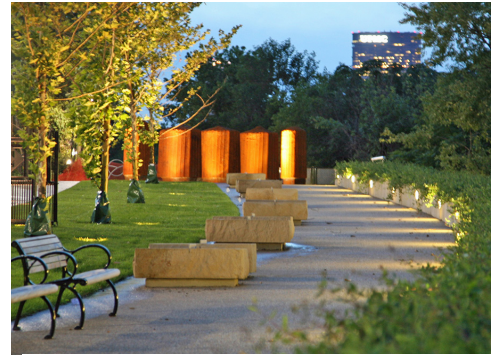
### Circulation Network

#### Heritage Walk

The widest (15 to 16') and longest is the extension of the Heritage Walk from Walnut Street to the Lock Wall. As was previously noted, the Middle Section of the Heritage Walk connects to the parking areas surrounding the Trails Center and accommodates large heavy vehicles such as the Norfolk Southern Railroad service trucks. Another important function of the Middle Section of the Heritage Walk is to permit passenger cars to more conveniently access the Phase III site to drop-off passengers and to park for short periods of time. Subsequently, its layout mixes multiple modes of traffic within a traditional 'yield street' configuration (very narrow one-way movements that occur one at a time; occasional by-passes are provided for waiting on-coming vehicles) and only allows slow traffic speeds. The entire length of the Middle Section is expected to meet universally accessibility requirements – thereby making the majority of Uplands accessible to those that have limited mobility.

### The River Walk

A wide (10 to 12') concrete paved walkway that parallels the top of the riverbank provides a universally accessible vantage point for those breathtaking sunsets and water-oriented activities. Differing from the Heritage Walk, this walkway is designed to accommodate only pedestrians. Seating in the form of hammocks, swings and traditional benches provides ample locations to meet friends and neighbors or to get away for a moment and just daydream! The western edge of the River Walk integrates a low screen wall that provides edge protection and mirrors one of the outer edges of the former canal basin and outlet channel.



### Woodland Paths

Narrow (6 to 8') stabilized gravel paths or wood boardwalks provide tertiary pedestrian access throughout the Uplands. Where physically possible, Woodlands Paths should be designed to meeting universal accessibility standards. However, Woodland Paths are not intended to be the primary circulation route to any given area within River Park.

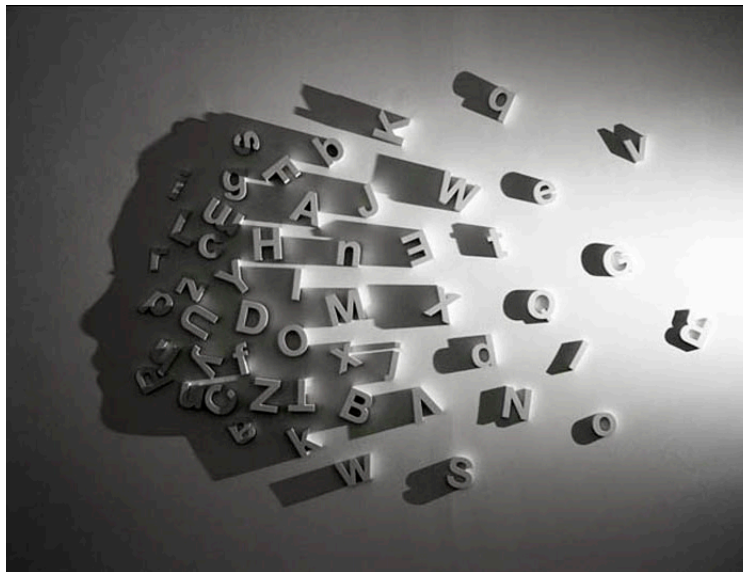




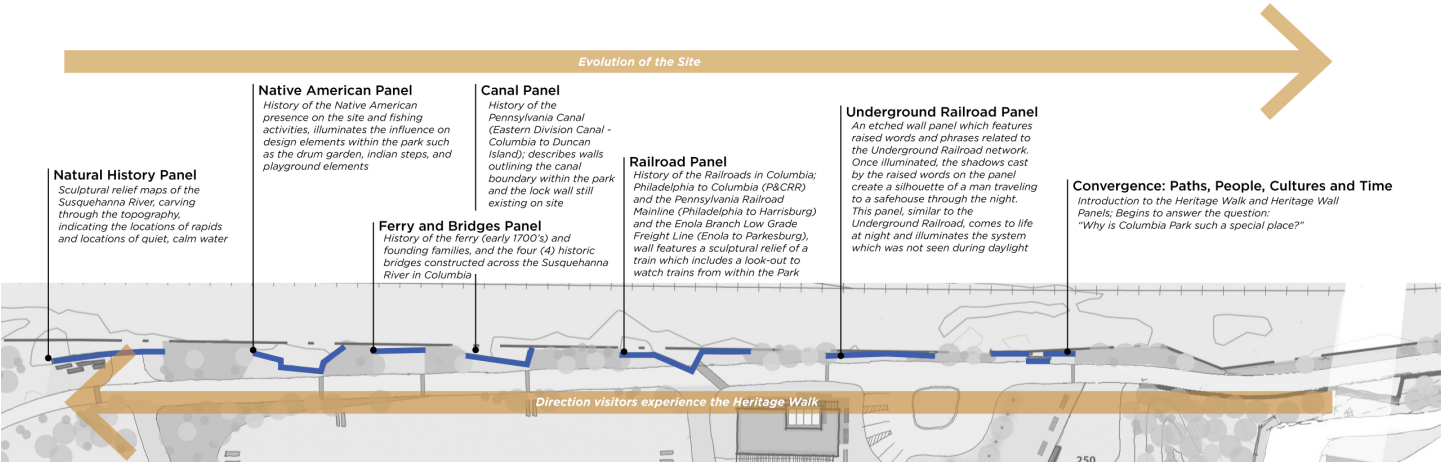
## Programmed Areas

### Heritage Wall

The Heritage Wall, an eight-foot high structure consisting of solid architectural panels and safety metal fabric fencing with tall 'thicket-like' vegetation, traces the eastern edge of the Heritage Walk's Middle Section. It has two purposes: a) to screen the Norfolk Southern railyard; and b) to provide a 'story-tellers canvas' to present and celebrate the important natural, historical and cultural aspects that characterize the River Park. Incredible stories that involve the actual site, whether fact or fiction, are well documented and allow the River Park to be uniquely alive with 'soul and spirit.' The Heritage Wall is designed to convey the six stories discussed in Part 2 of this document in an immerse and interactive manner. Visitors should not only be able to read educational content, but should be able to touch, feel and visually experience the emotions of the story.









### Pavilion and Welcome Plaza

Viewed as the heart of the Phase III site, the 2,365 square foot Pavilion provides shade from the sun on Tuesday afternoons and a rentable space for weekend special events and celebrations. Incorporated within the Pavilion is a publicly-accessible restroom facility that faces the Heritage Walk. This location is convenient, highly visible and able to be raised above the 100-year floodplain elevation.

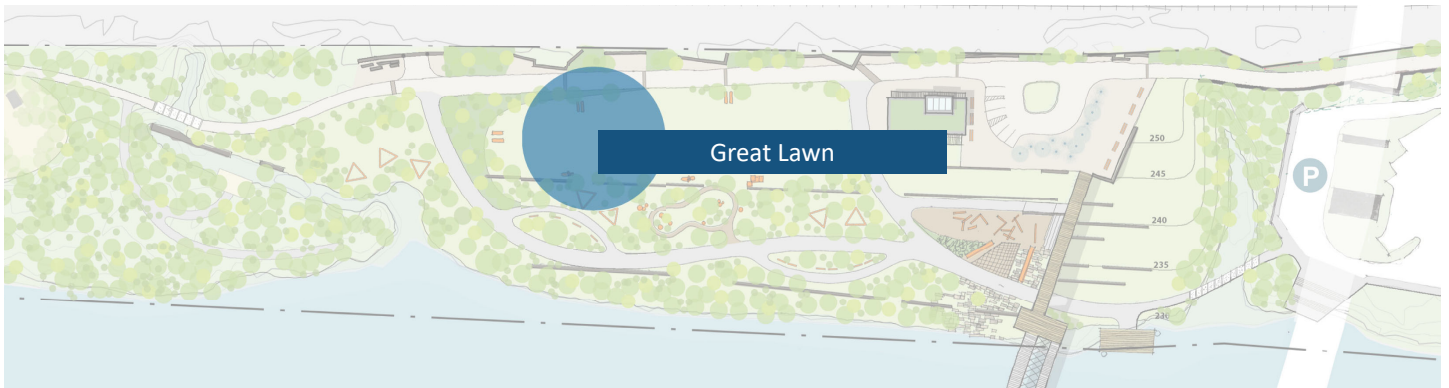
The Welcome Plaza, located at the end of the historic bridge abutment and immediately adjacent to the Pavilion, functions as the terminus of the passenger vehicle-accessible portion of the Heritage Walk. Its design incorporates a drop-off (largely for the Pavilion, the Amphitheater, the Creative Play Space and the Great Lawn), a vehicular turn-around and a small quantity of short-term parking spaces. These spaces are intended by the CRPAC to serve those with special circumstances such as persons with disabilities, expecting Moms or parents with small children. An interactive pop-up water feature provides visual and audible appeal without the need to large quantities of water. Finally, the Welcome Plaza is the main point of access to the Bridge and River Hammock – proposed features that directly address the majesty of the Susquehanna River.





### The Great Lawn

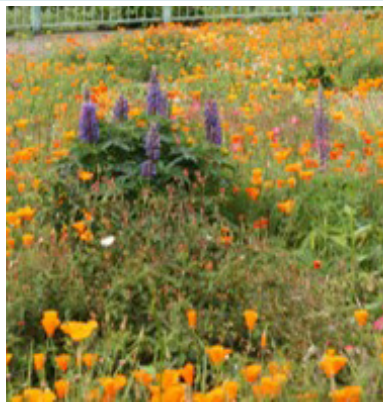
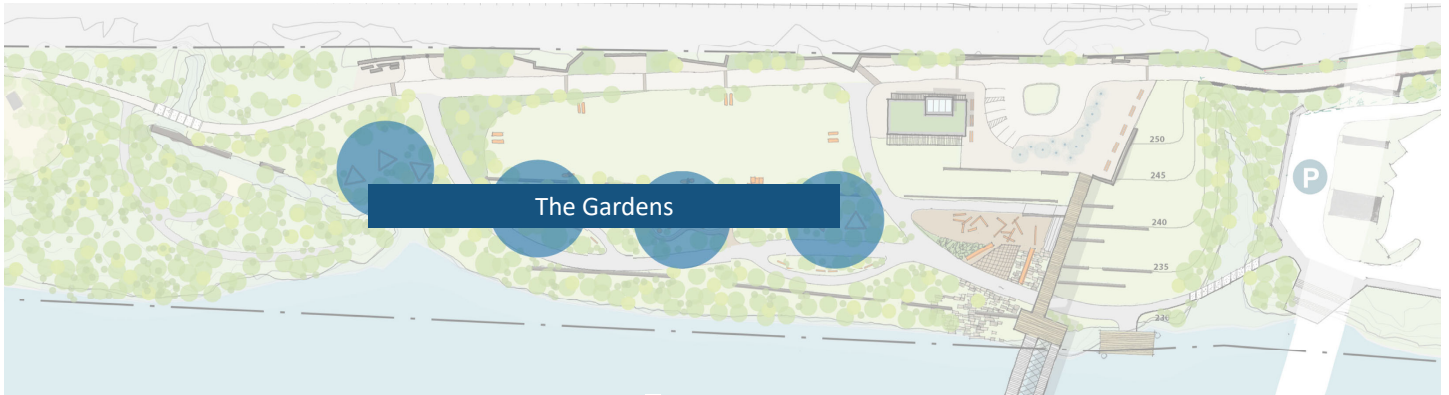
Positioned north of the Pavilion and the beginning of the active-passive zone, the Great Lawn creates a 150' wide by 500' long expanse of generally level turf. The Lawn is intended to be flexible and able to accommodate a multitude of uses – kite-flying to car shows. The western edge of the Great Lawn is defined by a low screen wall that traces the outer edge of the former canal basin and its outlet channel. The design allows the history of the canal to be brought to the surface without requiring major excavations or the sacrifice of usable park space.





## The Gardens

The Gardens are intended to create purpose-specific landscape areas where visitors can view native plantings, or experience the sound and reverberation of interactive Native American drums set in a woodland setting. The name Garden should not suggest ornamental or agricultural plantings akin to a formal rose garden or a vegetable plot. Incorporated within the Garden areas is a variety of seating options inclusive of hammocks and swings.





### Creative Play Space

Located immediately to the west of the Pavilion and its small event lawn, is a creative play space. Throughout the planning-design process, the public and the CRPAC reinforced the need for a playground to serve the residents. More importantly, and with almost unanimous support, the play space wants to be natural and historic in character – constructed predominantly of wood timbers, stone, manila rope, etc... Play features should incorporate forms or abstractions of historic elements such as canal boats, willow bough play nests, locomotives, cargo netting. A conventional factory-built playground with bright colors and plastic surfaces was not desired.

Additionally, the creative play space integrated into the Phase III Master Site Development Plan is both universally accessible and capable of accommodating inclusive features. A low retaining wall separates the Play Space from the Pavilion so that users and sounds are separated and somewhat controlled so the Creative Play Space can be open to the public while a private event is occurring in the Pavilion. Additionally, the wall provides a secure, visible and defensible boundary for children - which is unfortunately needed in today's world. Podium seating for parents and caregivers is located immediately adjacent to the Bridge and again creating an inconvenient obstacle between the general public and play space users.

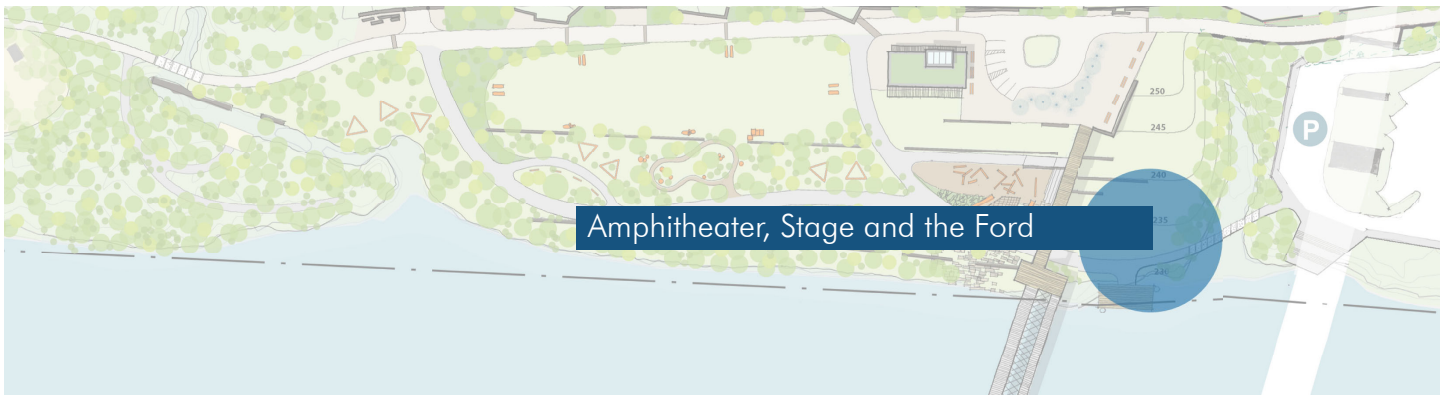




### Amphitheater, Stage and the Ford

The southern end of the Phase III site is reserved for a 750-person amphitheater. This performance space is accessible from the Welcome Plaza via steps (non-universally accessible) and an extension of the River Walk (universally accessible). Both stepped lawn areas and low stone/concrete walls are appropriately designed for sitting are integrated into the design. The focal point of the amphitheater is a 753 square foot stage. The stage is situated near the mouth of the southernmost unnamed tributary and has a breathtaking juxtaposition against the elegant arches of the Veterans Memorial Bridge. During non-performance times, the stage can be used as a universally accessible fishing dock.

The last design element in this programmed area is the Ford. In this area, the natural qualities of the southernmost unnamed tributary should be reinstated and the image of the stream as a forgotten storm water channel replaced with a more ecologically diverse, authentic and resilient environment, capable of serving multiple roles simultaneously. In so doing, the value of the creek corridor will be extended well into the surrounding community. As part of this restoration, a universally accessible connection from the Floating Stage to the River Park's existing canoe/kayak launch and motor boat ramp can be made. Consequently, sections of the Heritage Walk, the River Walk and the Ford can create a closed-loop that links the River Park's existing development to Phase III. Given the Ford's low-profile design and the suggested use of slip-resistant





and flood-tolerant metal grating surfaces, it can also be used for immersive and interactive environmental education opportunities found within the restored stream.

#### The Bridge, the River Hammock and the River Steps

Re-establishing a historic physical tie between the Phase III site and the flows of the Susquehanna River, the Bridge, the River Hammock and the River Steps are accessible from the Welcome Plaza and the River Walk extension. The Bridge creates a universally accessible walking promenade extending from the Welcome Plaza and the historic bridge abutment walls to the historic bridge pier situated along the river's edge. The Bridge also creates a semi-solid physical separation between the Creative Play Space and the Amphitheater. Serving as a short-term terminus for the Bridge is an overlook platform constructed on top of the historic bridge pier. The elevation of the Bridge and the overlook platform is above the 100-year floodplain, so the structure should be out of harms way.

As a long-term design element, the Design Team and the CRPAC members envision that overlook structure could be further extended to land on the first historic bridge pier fully located within the flow of the Susquehanna River. This extension, known as the River Hammock, could be designed to have a 15' wide walkway on its upstream edge and a 8' wide walkway on its downstream edge. These walkways should be universally accessible and could be constructed of wooden metal decking/slip-resistant metal grating on a steel beam structure. Interconnecting the two parallel walkways could be a steel-core or manila cargo netting system that would allow visitors to be leisurely suspended above the River – hence the name River Hammock. Further, there's a strong community desire to eventually extend the River Hammock or at least one of the parallel walkways to Wrightsville to create a pedestrian/bicycle dedicated only facility across the Susquehanna.

A third design element provides direct connectivity to the river's edge via two flights of River Steps. One flight is located immediately adjacent to the Bridge; the second flight is located near the northern end of the River Walk. The River Steps are anticipated to be constructed of simple but elegant and substantially-sized sandstone/gneiss/limestone blocks or roughly formed concrete blocks. The River Steps have two purposes: a) to provide safe, non-universally accessible pedestrian access to the river's edge for fisherman, photographers, daydreamers and love birds; and b) to form durable river edges that resist ice scour and armor the shoreline from erosion. A second set of River Steps is located near the Lock Wall Area to provide water access and attenuate the ice scour and erosion along the River.

#### Boardwalk and Interpretative Area





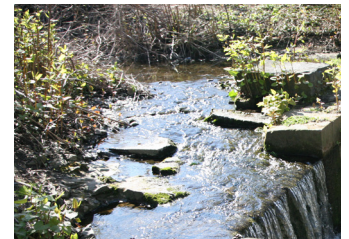
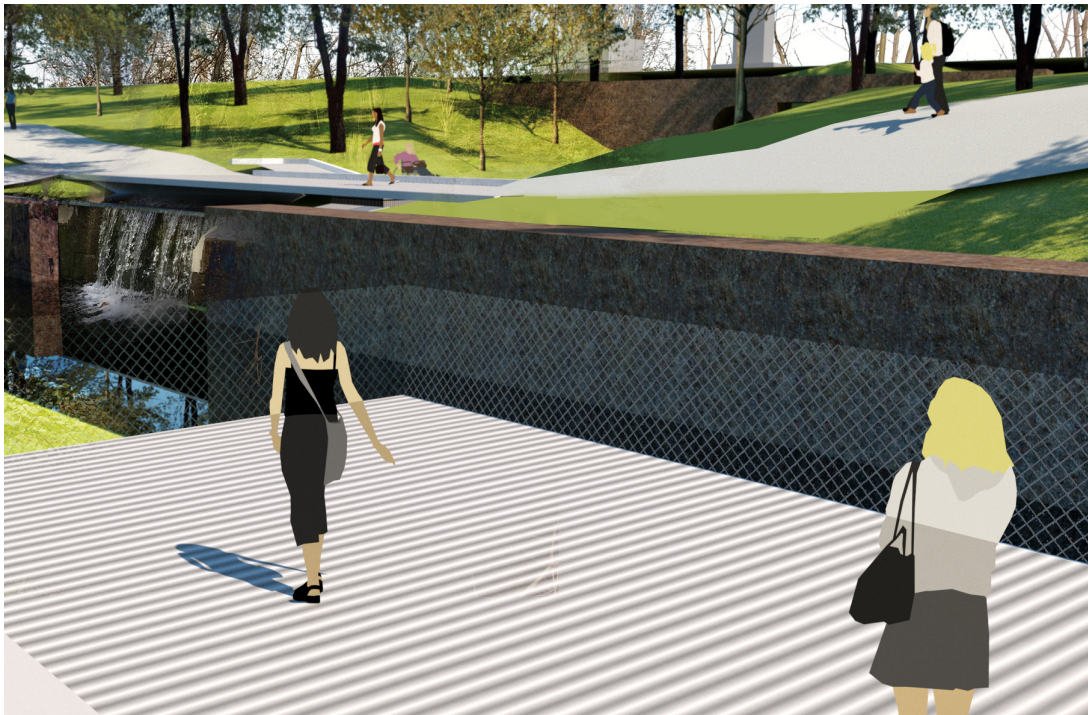




The last programmed area in the Uplands area is in the area of the historic Boardwalk and Interpretative Area. As the last visible vestige of the canal within the Phase III site, the Boardwalk and Interpretative Area presents another unique opportunity for cultural and environmental education and celebration. A unnamed tributary flows beneath the Norfolk Southern railyard and daylights above the existing Lock Wall. The water levels in this tributary are very constant and the stream bed is only four to six inches in depth. Similar to the situation found at the site's southernmost unnamed tributary, there is an additional opportunity to restore and enhance the natural landscape qualities of the stream. Further, its image could be transformed from storm water channel to an ecologically diverse, authentic and resilient ecosystem.

The recommended design introduces a boardwalk system that utilizes metal grating sections that can be placed just above the water line. The outer edge of the boardwalk should be setback from the Lock Wall by at least three feet. This approach permits low toe kicks to be used in lieu of taller railings which would visually compete with and detract from the beauty of the Lock Wall. Additionally, the proposed boardwalk system is flood-tolerant so an individual restricted to wheelchair can also experience the babbling flow of the water and the unique aquatic habitat of the stream. The Master Site Development Plan also suggests creating a short secondary path that arcs downstream to achieve a direct view of the face of the lock wall. Interpretative signage, etc. could be installed to further enhance the visitor experience.

#### 4.7 Phase III Master Site Development Plan – Floodplain Area





## Overview

The final group of programmed areas is clustered in the Phase III site's floodplain area and is indicative of the passive use zone. As implied in Part 2, the floodplain is a very volatile area that is subject to the rapid rise and fall of water levels as well as the swift and powerful flow of the Susquehanna. As a consequence to the environmental constraints and realities of the place, the CRPAC anticipates that the floodplain should see minimal development – Woodland Paths constructed of compacted soil and laid out to provide access to:

- spots where fishermen can enjoy a quiet morning;
- a semi-secured space where dog owners can let their dogs be.. well... dogs;
- and a common place where canoeist, kayakers and bicyclist can pitch a tent and catch a memorable sunset and star-filled night sky.

## Programmed Areas

### Island Bridge

A long-term vision is to create a short, non-universally accessible pedestrian bridge to an island just off the main shoreline. This island is frequented by fisherman and kayakers but with some risk. The River's backchannel in this area is swift and filled with invisible underwater obstructions that create strong undercurrents. The provision of the Island Bridge reduces those life-safety risks. The erection of the Island Bridge will require collaboration with West Hempfield Township and a host of regulatory agencies.



### First Bridge Interpretative Site

In an area just south of the current Wrights Ferry River Bridge (US Route 30), is the location of first bridge to span the Susquehanna River. During the summer months or during periods of low-flow, the silhouettes of the historic bridge pier foundations are visible. A rustic interpretative site that consists of substantial stone blocks that are inscribed with simple historic information is appropriate given the exposure to flooding.

### Dog-Friendly Area

A dog-friendly area is proposed for an area located between the Group Camping Area and the First Bridge Interpretative Site. An eight-foot high safety fence should be erected along the bottom of railroad embankment to prohibit dogs from scaling the embankment unimpeded. However, it is recommended that only this section of fence be installed since any fencing is susceptible to damage during flood events and could pose an on-going maintenance issue for the Borough's public works crews.



### Group Camping Area

Placed along a calmer section of the River's Backchannel and on top of a drier rise in the ground, the group camping area is anticipated to be suitable for pack-in/pack-out use and a rustic experience. Primitive camping with level tent pads, fire pits and a thinned tree canopy represent the most intense improvements suggested. The Backchannel's embankment may want to be regraded to allow campers arriving by canoe and kayak to safely 'beach'.



4.8 Functional Diagrams

The functional diagrams below illustrate different amenities and functional areas within the site plan that were identified and intentionally located within the design.







## 4.9 Potential Sustainability Strategies and Materials Palette

The Master Site Development Plan, as previously noted, casts a vision for future development. The Plan uses birds-eye view-type drawings as well as perspective or elevational sketches to describe the recommended development areas and the specific improvements. The Master Site Development Plan, however, does not provide enough detail from which a contractor could build immediately. The detailed design for any of the improvements remain to be completed and specific material selections still need to be made.

The CRPAC did discuss throughout the planning-design process their perspectives on sustainability as well as a broad set of building materials that they felt would be appropriate for River Park. These thoughts are enumerated in the following summary and provide a starting point for more decisive and in-depth discussions as the implementation of the Phase III site advances into the more detailed design stages.

### Sustainability

The first two development phases of River Park incorporated numerous sustainability strategies. The building that houses the Columbia Crossing River Trails Center incorporated alternative energy heating sources (LP gas) and passive solar-based lighting and heating design details were incorporated into the building designs. In the outside areas of the Park, rain gardens, native plantings, porous concrete paving and turfed overflow parking spaces were used as design solutions. Borough and Susquehanna Heritage representatives on the CRPAC noted that some of the sustainability investments were effective, but others did not perform and/or were eventually replaced or taken out of service. Winter salt, heavy loads of traffic, etc... challenged the durability of investments such as rain gardens located within the parking areas. Given this past experience, the CRPAC felt that low cost sustainability strategies that have a proven (e.g. time-tested) track record for success and a short-payback period should be incorporated into the design of Phase III. But, more costly strategies or ones that have not been used elsewhere with great success should be avoided.

The Phase III Master Site Development Plan envisions that the future development of River Park should incorporate the following sustainability strategies into the detailed building and site designs and construction processes:

### Solar

The Phase III site not only enjoys tremendous views of the River and the memorable sunsets, its oriented in a manner that is solar exposure is nearly ideal for solar energy installations. The roof surface of the Welcome Pavilion provides nearly 1,500 s.f. of solar exposure where photovoltaic units (PV) could be installed in lieu of a conventional roof or green roof system. Given the available roof area and typical solar exposure, the PV units could capture and return to the existing electric grid approximately 5,000 kWh of energy per annum. By using a 'net metering' approach (aka returning the solar generated electric back to the existing electric grid rather than storing the energy on-site via a battery system for later use). This energy could be used to discount or defray the Borough's annual electrical expenses for the pavilion while providing a practical and effective green energy alternative. However, the Borough should assess the installation cost for PV units and whether any grant programs are available to decrease the capital outlay that is typically needed of such an installation. The cost savings related to electric power in Lancaster County will most likely extend the 'pay-back period' to 30-years or more in the future. Subsequently, the Borough will need to determine if the very long pay-back period is financially reasonable or if a solar installation is more of a statement of the 'right thing to do' as a community.

### Rain Water

Columbia Borough has been designated a MS4 community by the Pennsylvania Department of Environmental Protection. A MS4 community is responsible for reducing and regulating the flow of rainwater or storm water runoff into surface water sources such as the Susquehanna River, Chiques Creek and the four unnamed tributaries that flow through the Phase III site. A strategy for reducing and regulating the rain water runoff is catchment and infiltration. Given the topographic contour of the Phase III site, surface drainage moves from the Norfolk Southern railyard to the Susquehanna River. The Master Site Development Plan has incorporated a series of gabion-style stone walls and underground trenches to 'cut-off' the flow of water that naturally moves towards the River. This harvested water could be redirected and stored in an underground tank or cistern and used to provide water service to the interactive water feature envisioned for the Drum Grove. Further, the stone fill used in the gabion-style walls situated along the edges of the Great Lawn and River Walk could have a similar color and texture to the stone used in the old river bridge piers and abutment walls to further the new park improvements to the site's heritage.

If PV units cannot be incorporated into the roof of the Welcome Pavilion, a green roof could be used as an alternative and would present a second sustainable option related to rainwater. The downspouts from the green roof for any overflow that can not be transpired by the green roof plants could be tied into the French drains; the roof overflow could then be combined with other runoff in an underground tank or cistern and reused as non-potable water.

### Native Plants

The Master Site Development Plan anticipates that all plant material used in the Phase III site will be either native to the Susquehanna Valley or indigenous to the Central Pennsylvania/upper Chesapeake Bay region. Indian Grass, Jacobs Ladder, Bee Balm, Serviceberry, Chokeberry, Grey Birch, Buttonwood, White Oak and Black Locust are examples of appropriate plant species for the final park design. These species are commonly available, are easily adaptable to the extreme weather variations that the Columbia area experiences and require minimal maintenance once established.

### Wood Elements

The Creative Play Space, Pavilion and the various decking surfaces could be constructed with regional available logs, timbers and planks that have been thermally modified for rot protection. Thermally modified wood does not use any chemical treatments or substances as a preservative. Rather, these wood products are made through a sustained 'baking' process that not only dries the green wood but eliminates the organic



material without reducing its cellular structure and strength. Thermally modified wood is an environmental alternative to pressure treated decking and composite materials that use significant amount of epoxies, plastics and non-structural fiber.

### Materials Palette

While not a customary topic addressed by a master plan, the design concept established for Phase III of River Park is strongly tied to site's heritage. Important to the heritage of place and the success of a design are the building materials of which the new development will be constructed. The Master Site Development Plan described and illustrated on the previous pages of this document envisions a public place whose form and spatial dimensions reflect simple elegance, continuity, un-obstructiveness and a human-scale. The overall design is not about making a statement about itself – rather the design allows the stories of the place to be revealed and interpreted in a multitude of manners, both active engagement and passive enjoyment/celebration. For this approach to remain visibly strong and legible to park visitors in the future, a simple and complimentary set of core building materials should be used. The recommended material palette for these core building materials is depicted below. They can be used in numerous ways and are adaptable to broad range of architectural-styles or characters (e.g. colonial versus contemporary).

*Limestone, gneiss and sandstone* in rubble or ashlar patterns or in block form – reflective of the past bridge piers, abutments walls and canal locks

*Cedar, ash, poplar and oak* – timber and decking material that are readily available in Central Pennsylvania and the Chesapeake Bay region and can be thermally modified. Moreover, all four species weather or oxide to a similar silver-grey hue when exposed to sunlight over a period of time. Wood materials are anticipated to be incorporated into the design of the Pavilion, the Creative Play Space, the Amphitheater and along the River Walk

*White concrete* – conventional concrete that simply uses a white or light tan sand in lieu of brown-hued river sand. The Master Site Development Plan utilizes an inter-connected network of walking surfaces – some universally accessible; some not. Its recommended to use the white concrete material on the surfaces that are universally accessible and not to be used by heavy trucks/vehicles

*Asphalt pavers* – made of compressed bituminous asphalt and of similar color and character of historic blockstone, but much more durable and uniform in texture. Most importantly, the compressive strength of the pavers allows them to be used to carry heavy loads along the Heritage Walks' Middle Section (for instance the large trucks used by Norfolk Southern Railroad to access the railyard). But their modular design (unitized pavers) creates a more human-scale texture to the paved area does not appear as a conventional public road. Rather it has a aesthetic appearance and textural feel akin to a historic square, plaza or carriage-way

*Galvanized steel* – sealed to inhibit rust and decay but strong. Can be used for structural supports and durable, floodable and non-slip gratings/decking on surfaces subjected to immersion. The dull silver finish is neutral and easily harmonizes with other materials.





#### 4.10 Overall Capital Costs

As part of the planning-design effort, the capital costs related to the Master Site Development Plan's physically-oriented recommendations were projected. Capital costs are fixed, one-time expenses incurred on the purchase of land, buildings, equipment or the construction/renovation of a building and subsequent improvement of the land the building sits upon. The capital cost projections, referred to as an Opinion of Probable Development Cost (OPDC), are often important decision-making tools when finalizing the details of a master plan. Additionally, they're essential to future fund-raising and finance efforts as well as to making decisions on priorities and next steps.

A set of OPDCs were generated during the planning-design process and were used by the CRPAC to evaluate the finance feasibility of the various design concepts and to shape the physical form and building materials envisioned by the concepts. Finally, park development projects that are of the scale and complexity of Phase III sometimes need to be constructed in stages or phases that span a period of years. The OPDC was utilized by the CRPAC to delineate potential implementation or construction phases and to determine a realistic timeframe for buildout of the Phase III site.

An OPDC is based on the quantity of particular materials or improvements incorporated into the Master Site Development Plan. For example, improvements such as utilities, earthwork, paving, lighting, etc... are tabulated and quantified. These quantities are then multiplied by actual development or construction costs for similar or comparable materials or park improvements realized in recent (e.g. since 2014) park construction projects. Where the actual development costs used as reference for the Phase III predated 2017, the referenced cost was adjusted to account for the rate of inflation rate that occurred over that time period.

The following summary table outlines the anticipated development costs for Phase III and are inclusive of the 10-acre tract as well as connections to the existing River Park improvements, the rework of the Northwest Lancaster County River Trail between Front Street and the Columbia Crossing River Trails Center as well as the recommended Walnut Street sidewalk and interpretation-related improvements extending from Heritage Drive Extension to 3<sup>rd</sup> Street. The



costs have been grouped into geographic areas (e.g. Welcome Plaza, The Great Lawn, Creative Play Space, etc...) rather than by material or construction component (e.g. asphalt paving, concrete paving, wood decking, etc...) so that a reader is able to better tie the cost projections to the Master Site Development Plan itself.

A detailed OPDC exhibit is included in the Appendix of this document. The exhibit, while organized by geographic area, does provide the quantity and referenced unit cost for the recommended improvements. This exhibit is suitable to use as part of future grant requests or cost documentation for potential funders.

**Table 7: Opinion of Probable Development Costs**

DEVELOPMENT AREA AND GENERAL SITE IMPROVEMENTS	TOTAL IMPROVEMENT COST
<i>Heritage Walk</i>	\$985,000
<i>Welcome Plaza</i>	\$690,000
<i>Utilities</i>	\$275,025
<i>Pavilion and Restroom Building</i>	\$425,000
<i>The Bridge</i>	\$450,000
<i>Creative Play Space</i>	\$210,400
<i>The Great Lawn, Event Lawn and Stormwater Gardens</i>	\$450,000
<i>The Stage and the Ford</i>	\$295,000
<i>The River Walk and Gardens</i>	\$385,499
<i>Amphitheater</i>	\$355,000
<i>Heritage Wall</i>	\$404,500
<i>Floodplain (Dog-Friendly Park, Group Camping Area, Island Bridge, etc.)</i>	\$100,000
<i>Overall Park</i>	\$340,000
<i>Walnut Street Streetscape</i>	\$144,000
<b>Estimated Total:</b>	<b>\$5,509,424</b>
<b>IMPROVEMENTS THAT COULD BE IMPLEMENTED</b>	
<i>Northwest Lancaster County River Trail Connection</i>	\$1,255,050
<i>River Hammock</i>	\$2,000,000
<b>Overall Total</b>	<b>\$8,764,474</b>

## 4.11 Implementation Priority

### Needs and Priorities for Implementation

Projects with a scale and complexity similar to that of River Park are often implemented over a period of time. Not that more time is necessarily needed for construction activities, typically more time is needed to raise or appropriate funds to finance construction. As the Master Site Development Plan was finalized and detailed construction costs were projected, the CRPAC evaluated what, if any, phases would be logical steps towards funding and/or establishing public access to the Phase III site. In essence, the CRPAC likened a phase to a “mini-project.” The CRPAC reviewed the Master Site Development Plan and identified what mini-project should be completed first as per community needs, required infrastructure improvements/expansion and relative cost/funding potential. They then determined which mini-project could build upon the preceding project and so forth. Hence, some of the priorities/needs that were identified had to be completed in a particular sequential order because of base construction or foundation work, etc. that was necessary; other phases could be implemented independently from other phases.

Summary of Priority Project

1. Improve the Northwest Lancaster County River Trail connection;

Provide the grading and pavement base construction of the Heritage Walk (from the west side of Walnut Street to the yellow gate);

Reconfigure the parking lot area and vehicular connection between the Phase III site and the previous park development phases (in front of the Columbia Crossing River Trails Center).

2. Clean-up the overall Phase III site;

Develop a network of secondary trails (constructed of earth and wood mulch);

Construct the Ford, basic utilities between the yellow gate and the previous park development phases.

3. Complete the rough grading of the Amphitheater and provide the pavement base construction of the Heritage Walk from yellow gate to the Welcome Plaza;

Build the Welcome Plaza and the Creative Play Space.

4. Finalize the grading and finishes of the Amphitheater and the Stage, the Bridge and the River Overlook.

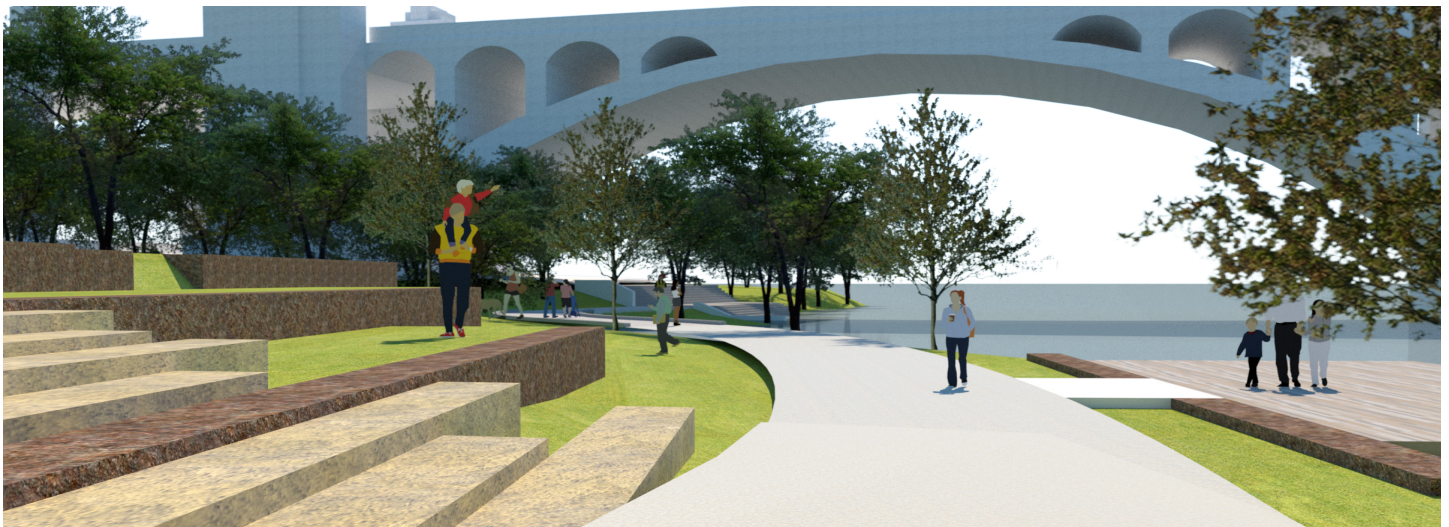
5. Extend the pavement base construction of the Heritage Walk from the Welcome Plaza to the Lock Wall; erect the Heritage Wall from the yellow gate to end of the Great Lawn.

6. Construct the River Walk, the Great Lawn, River Steps, the Gardens and the First Bridge Interpretative Site.

7. Develop the Welcome Pavilion and restrooms; complete the final utility connections.

8. Finish the remaining improvements illustrated in the Master Site Development Plan inclusive of the River Hammock, Dog-Friendly Area, the Group Camping Area.

After discussing needs and priorities, the CRPAC outlined a phasing strategy for River Park's final development. The phases delineated discrete construction areas/zones where work could be completed in accordance with the defined priorities, but also in a manner where previously constructed improvements would not be disrupted or damaged by newer development activities. The first component in the strategy is the sequence of Phasing Diagrams that delineate the various steps, "mini-projects" or phases that the CRPAC settled on; the second component is the Phasing Summary Table that enumerates a generalized scope and cost for a particular phase. Both of the components provide essential information needed for capital planning, grant-writing activities and fund-raising efforts.





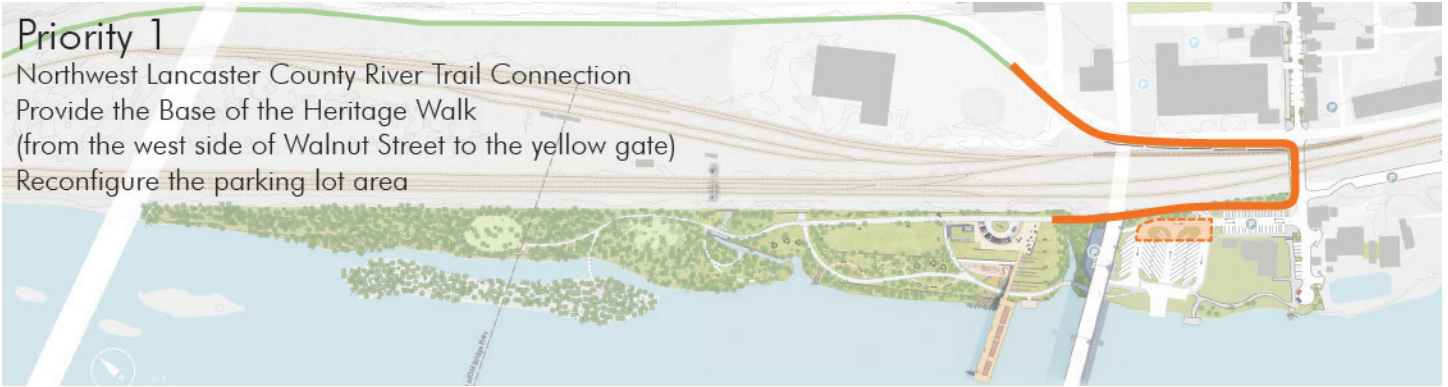
Outlined on the following pages is the proposed phasing strategy for River Park’s final development. The first component in the strategy is the Priority Diagram that delineates the “mini-projects” or stages that the CRPAC settled on; the second component is the Implementation Priority Summary Table that enumerates a generalized scope and cost for a particular stage. Included in the Priority Diagram and Summary Table are two sets of improvements that are not situated within the Phase III site. These improvements are related to the Walnut Street streetscape improvements and the Northwest Lancaster County River Trail connection.

**Table 8: Implementation Priorities**

PRIORITY	DEVELOPMENT AREA and GENERAL SITE IMPROVEMENTS	ESTIMATED COSTS
1	<i>Northwest Lancaster County Rivertrail Connection, Base paving for Heritage Walk (from west side of Walnut Street to yellow gate; to be finished with pavers after all other construction phases), Reconfiguration of the parking lot area</i>	\$1,825,000
2	<i>Site clean-up, secondary trails, the Ford, basic utilities and basic access</i>	\$550,400
3	<i>The Welcome Plaza, Creative Play Space, rough grading of the Amphitheater, base paving for Heritage Walk (from yellow gate to Welcome Plaza; to be finished with pavers after all other construction phases)</i>	\$1,460,000
4	<i>Final grading and completion of Amphitheater, River Overlook and the Bridge</i>	\$440,074
5	<i>River Walk, Great Lawn, River Steps and the Gardens</i>	\$722,000
6	<i>Pavilion, Restrooms and Heritage Walk (with finished pavers) from the Welcome Plaza to the Lock Wall and subsequent section of Heritage Wall</i>	\$1,425,000
7	<i>Complete Heritage Walk (with finished pavers) from the Welcome Plaza to the west side of Walnut Street, complete remaining sections of Heritage Wall</i>	\$98,000
8	<i>Remaining improvement in the Floodplain and River Hammock</i>	\$2,100,000
OTHER IMPROVEMENTS (that can be independently implemented)		
1	<i>Walnut Street Streetscape</i>	\$144,000.00
<b>Estimated Total:</b>		<b>\$8,764,474</b>
<b>Cost per Square Foot of Park Area</b>		<b>\$25</b>

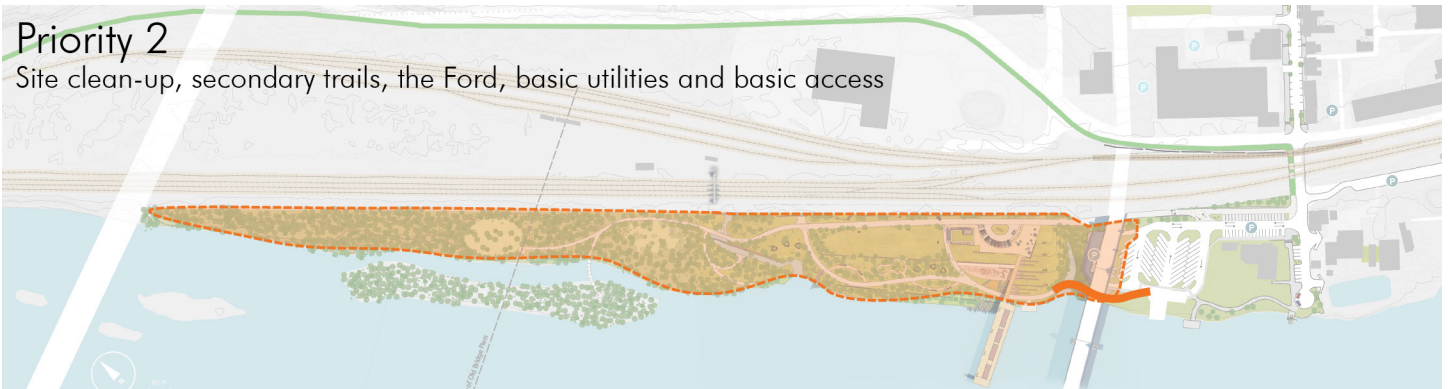
### Priority 1

Northwest Lancaster County River Trail Connection  
Provide the Base of the Heritage Walk  
(from the west side of Walnut Street to the yellow gate)  
Reconfigure the parking lot area



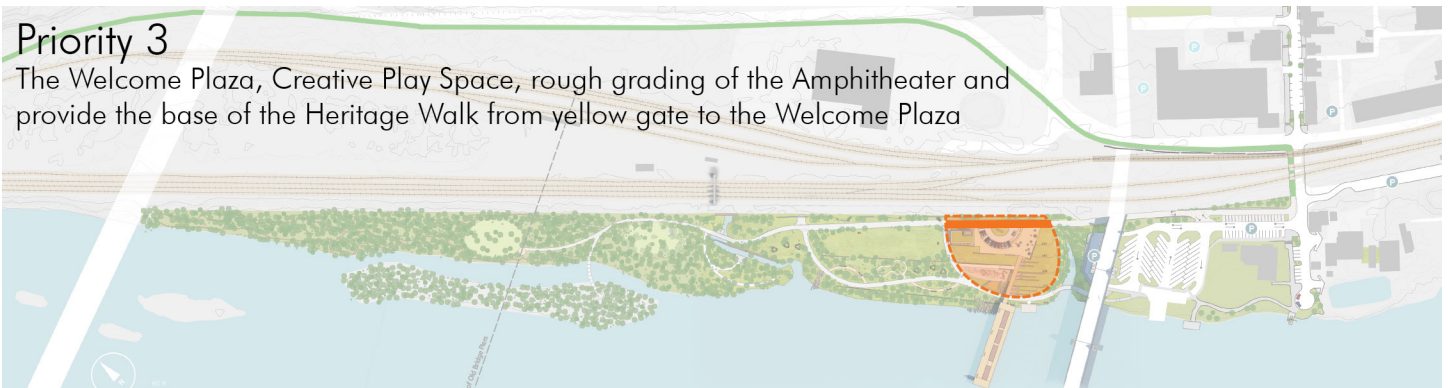
### Priority 2

Site clean-up, secondary trails, the Ford, basic utilities and basic access



### Priority 3

The Welcome Plaza, Creative Play Space, rough grading of the Amphitheater and provide the base of the Heritage Walk from yellow gate to the Welcome Plaza



### Priority 4

Final grading and completion of the Amphitheater, River Overlook and Bridge





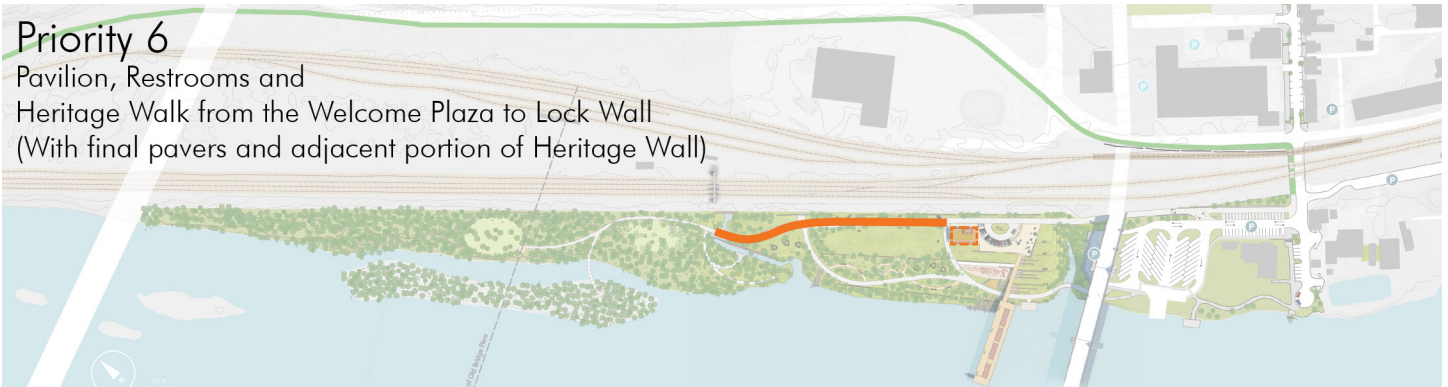
### Priority 5

The River Walk, Great Lawn, River Steps and Gardens



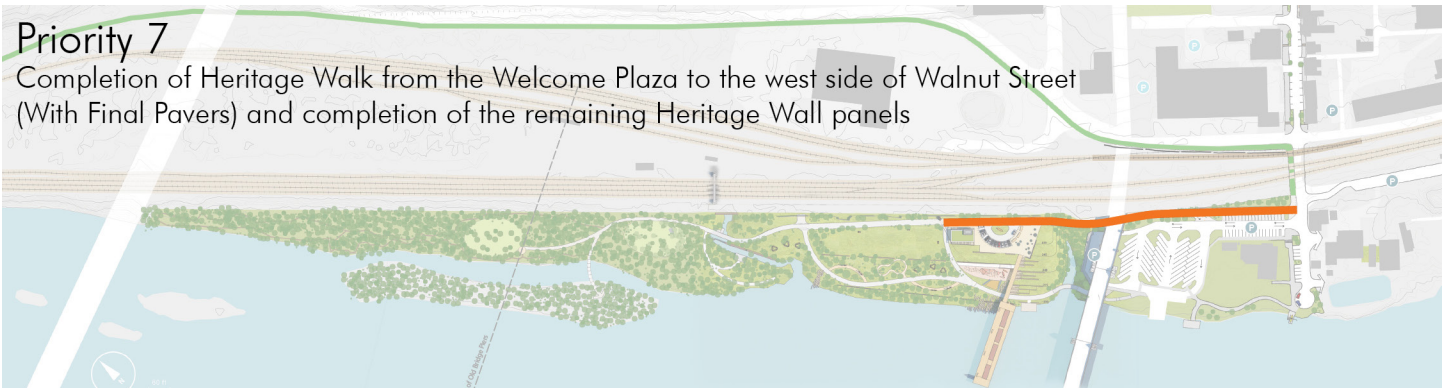
### Priority 6

Pavilion, Restrooms and Heritage Walk from the Welcome Plaza to Lock Wall (With final pavers and adjacent portion of Heritage Wall)



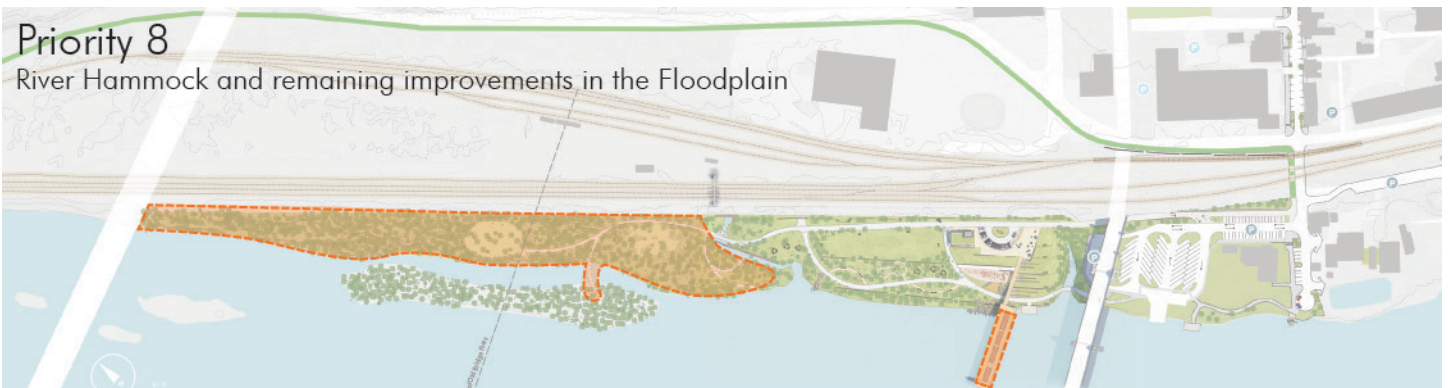
### Priority 7

Completion of Heritage Walk from the Welcome Plaza to the west side of Walnut Street (With Final Pavers) and completion of the remaining Heritage Wall panels



### Priority 8

River Hammock and remaining improvements in the Floodplain





## 4.12 Funding

In total, 97% of the total costs of River Park's first two phases, inclusive of land acquisition, site preparation and facility construction were funded through federal or state grant programs. The Phase I and II developments occurred over a period of 8 years. Consequently, only 3% of River Park's development to date has been funded through the Borough's general funds or bond obligations. These costs have been spread over nearly a decade of the community's annual budget allocations and have had no relative impact on taxpayers. This is a remarkable achievement; but in today's economic and political climate, this success may be difficult to replicate in whole.

The funding strategy discussed by the CRPAC as part of the Phase III master planning effort follows a similar path as the previous phases. It is recommended that the Borough and its partners pursue federal and state grant opportunities with a goal of funding 80% to 85% of the Park's Phase III development through additional grant programs. This benchmark or goal is aggressive but achievable. The remaining 15% to 20% funding could be made up of commitments or sources borne from general funds, general obligation bonds, private fundraising efforts or private sponsorships.

On the following page is a summary of a Pennsylvania-based grant programs applicable to a project such as the implementation of the Phase III Master Plan. The Appendix contains additionally information or descriptions of these grant programs as well as the general conditions or requirements associated to them. An important aspect of grant-writing is the strategic sequence or order of the actual grant requests, the permissibility of coupling or 'matching' funds from different grant programs and the appropriate means of using public monies versus private donations/grants in order to avoid cost escalations or overly restrictive bidding processes/requirements. The Borough (largely its Administrative Staff and the CRPAC members) should review the various grant programs to stay abreast of the specific conditions and requirements so that the project's overall funding strategy can be fully optimized.





Table 9: Pennsylvania Grant Summary

PENNSYLVANIA GRANT SUMMARY							
Grant/Funding Source	Grant/Funding Source	General Scope/Improvement Work	Realistic Grant Ceiling	Match Levels		Application Timeframe	Who Can Be The Grantee
				State	Required Local		
DCED (CFA) <sup>1</sup>	Greenways, Trails and Recreation Program	Projects involving development, rehabilitation and improvements to public parks, recreation areas, greenways, trails, and river conservation	\$ 250,000	85%	15%	February 1 - May 31	M N A
DCED (CFA)	Multimodal Transportation Fund	Projects involving development, rehabilitation and enhancement of transportation assets to existing communities, streetscape, lighting, sidewalk enhancement, pedestrian safety, connectivity of transportation assets and transit-oriented development	\$ 250,000	70%	30%	March 1 - July 31	M N A
DCED	Marcellus Legacy Fund	Projects involving acid mine drainage abatement, watershed restoration, gas well management and plugging, development and rehabilitation of greenways and recreational trails, sewage treatment projects, and replacement and repair of deteriorated bridges in municipalities with unconventional gas wells.	\$ 300,000	85%	15%	February 1 - May 31	M N A
DCNR	Community Conservation Partnership Program (C2P2)	Projects involving planning, acquisition and development of public parks, recreation areas, motorized/non-motorized trails, river conservation and access, and conservation of open space	\$ 200,000	50%	50%	January 15 - April 15	M N A
DCNR	Riparian Forest Buffer Program	Projects involving landowner outreach, buffer design, site preparation and buffer installation, plant materials and tree shelters, and short-term maintenance	Unknown	50%	50%	Due December 29	M N A

**Key Points Regarding Match Grants**

1. When a project utilizes federal money, the project may not be funded entirely with federal money. The rest of the project is funded with either state or local money.
2. Also, state to state funds may be used to match each other. A project may have \$1 million verified in funding. This funding can be broken down into the following: PennDOT \$500,000, CFA \$250,000, and DCNR \$250,000. In this case, the CFA and DCNR grants may be used to match the PennDOT grant
3. Typically, there is a logical order in which grants are applied for so that other grants can be used as leverage. This is dependent upon the match requirement. For example, PennDOT and CFA grants have lower local match levels so they are at the top.

**Footnotes/Comments**

1. CFA is administered through the PA DCED.
2. As per past experience with the developing PA DCNR, PA DEP and PA DCED grant applications, it is suggested that the Borough contribute 10-20-% from capital resources or general operating expenses to the overall project as a means of demonstrating support for the project.

**Legend**

M - Municipal  
N - Non-profit  
A - Authority  
F - For-profit

4.13 On-Going Operations and Maintenance Costs

Earlier in this document the capital costs related to the improvement of the Phase III site as per the Master Site Development Plan recommendations were summarized. However, another important aspect of preparing and implementing a plan are the on-going costs related to everyday or regularly occurring operations and maintenance (O&M) functions and/or activities. O&M costs largely focus on maintenance materials, special maintenance equipment, utilities, insurance and liability protection, operational supplies as well as the staffing needed to keep the “doors open and the lights on.” Some specific park-oriented examples include snow plowing, grass mowing, restroom upkeep, trash pick-up or event scheduling, etc... In total, the capital, maintenance and operating costs represent the overall cash outlays that a community such as Columbia would expect to incur over the life of the park.

The following table is an Operations and Maintenance Cost Summary for the improvements anticipated to be developed in the Phase III site. The Cost Summary does not include the existing portions of River Park or the Columbia Crossing River Trails Center. The Cost summary outlines a series of O&M tasks. These have been calibrated to the activities and improvements suggested by the Master Site Development Plan. The personnel hour estimates and the hourly or material cost projections related to the individual O&M tasks are based on 2018 dollars and have been vetted by the Borough’s Department of Public Works and Administrative staff.



Table 10: Operations and Maintenance Cost Summary Table

Phase III <sup>1,3</sup>										
Item	Quantity	Unit	Unit Cost Low*	Unit Cost High*	Frequency Apr to Oct (25 weeks)*	Frequency Nov to Mar (27 weeks)*	Annual Total Low	Annual Total High	Possible Volunteer Completion	Notes
<b>Creative Play Space</b>	24	Hours	\$33	\$55			\$792	\$1,320		
Replenish and Rake Certified Wood Mulch					Annually				✓	
Remove Old Certified Wood Mulch and Replace					Every five years				✓	Cost listed is 1/5 of the total cost
Tree Trimming/Maintenance Including Mulch Areas					Annually					
<b>Great Lawn and Event Lawn</b>	60	Hours	\$33	\$60			\$1,980	\$3,600		
Mowing					Weekly					
Top Dressing/Overseeding					Annually				✓	
<b>Spring/Fall Cleanup</b>	55	Hours	\$33	\$60			\$1,815	\$3,300		
Spring/Fall Cleanup					Spring/Fall				✓	
<b>Planters, Shrubs and Trees</b>	70	Hours	\$33	\$60			\$2,310	\$4,200		
Weeding and Pruning					Spring/Fall				✓	
Replenish Mulch					Annually				✓	
Remove Old Mulch and Replace					Every five years				✓	Cost listed is 1/5 of the total cost
Invasive Species Maintenance/Removal					Spring/Fall				✓	
<b>Hard Paving</b>	16	Hours	\$33	\$60			\$528	\$960		
Repair Holes/Cracks					Annually					
Sealing					Annually					
<b>Snow Removal</b>	1	Unit Price	\$550	\$1,600			\$550	\$1,600		
Snow Removal					Average of 50 times/season <sup>2</sup>					Assuming snow removal related to all snow events greater than 1" (average of 50/season)
<b>Mayfly Clean-Up</b>	1	Unit Price	\$550	\$1,600			\$550	\$1,600		
Mayfly Clean-Up with leafblower, etc.										Assuming Mayfly removal/clean-up related to Mayfly population/hatches throughout the year
<b>Trail Paving</b>	8	Hours	\$33	\$60			\$264	\$480		
Repair Worn Areas					Annually				✓	
Material Replenishment					Annually				✓	
<b>Decomposed Granite</b>	8	Hours	\$33	\$60			\$264	\$480		
Raking Decomposed Granite					Annually					
Replenishing Decomposed Granite					Annually					
<b>Stage</b>	4	Hours	\$30	\$55			\$120	\$220		
Replace Deck Boards					As needed					
Electrical Inspection					Annually					
<b>Gabion Service Area</b>	12	Hours	\$33	\$55			\$396	\$660		
Weed Removal					Annually				✓	
<b>Stormwater Systems</b>	8	Hours	\$30	\$55			\$240	\$440		
Inspection and Maintenance					Annually					
<b>Field Grass</b>	10	Hours	\$30	\$55			\$300	\$550		
Mowing					Weekly					
Top Dressing/Overseeding					Annually				✓	
<b>Trash and Litter Removal</b>	24	Hours	\$33	\$60			\$792	\$1,440		
Weekly					Weekly					

Phase III<sup>1, 3</sup>

Item	Quantity	Unit	Unit Cost Low*	Unit Cost High*	Frequency Apr to Oct (25 weeks)*	Frequency Nov to Mar (27 weeks)*	Annual Total Low	Annual Total High	Possible Volunteer Completion	Notes
<b>Vandalism and Graffiti Removal</b>	8	Hours	\$33	\$60			\$264	\$480		
Bi-Annual					Biannually				✓	
<b>Storm System</b>	4	Hours	\$33	\$60			\$132	\$240		
Inspection and Maintenance					Annually					
<b>Lighting</b>	4	Hours	\$33	\$60			\$132	\$240		
Bulb/Fixture Replacement					Annually					
<b>Materials<sup>2</sup></b>	Varies						\$28,398	\$31,258		
Decomposed Granite	500	SF	\$3	\$4	Annually		\$1,500	\$2,000		
Pavers	500	SF	\$5	\$6	Annually		\$2,500	\$3,000		
Concrete	250	SF	\$9	\$10	Annually		\$2,250	\$2,500		
Topsoil	50	CY	\$30	\$40	Annually		\$1,500	\$2,000		
Replenish Bark Mulch	22	CY	\$55	\$60	Annually		\$1,210	\$1,320		Assuming .25" to .5" depth of mulch
Replace Bark Mulch	1000	CY	\$55	\$60	Every five years		\$11,000	\$12,000		Cost listed is 1/5 of the total cost
Replenish Certified Wood Mulch	187.5	SY	\$25	\$25	Annually		\$4,688	\$4,688		Assuming 1" depth of mulch
Replace Certified Wood Mulch	750	SY	\$25	\$25	Every five years		\$3,750	\$3,750		Cost listed is 1/5 of the total cost
<b>Operations<sup>4</sup></b>	Varies						\$6,552	\$8,736		
Liability Insurance	1	Year			Annually		\$0	\$0		
General Insurance	1	Year			Annually		\$0	\$0		
On-Site Staff (part time)	10	Hours			Weekly		\$0	\$0		
Custodial Services <sup>5</sup>	14	Hours	\$9	\$12	Weekly		\$6,552	\$8,736		
Safety; Police; assumes 2-3 patrols per day, 7 days/wee	1	Week			Weekly		\$0	\$0		
						Phase III Labor Total	\$11,429	\$18,390		
						Phase III Materials Total	\$28,398	\$31,258		
						Phase III Operations	\$6,552	\$8,736		
						Phase III Total	\$46,379	\$58,384		

Notes:

1. With a number of different options for landscape maintenance in the market, two hourly rates were included based on regional industry averages. Outliers exist below the low end and above the high end. This estimate does not include any volunteer efforts or donated time. Identified tasks are calculated based on hourly rates and based on a 25-week spring/summer/fall season.

2. Material costs are shown as separate line items.

3. Typically 45-55 days per year in Lancaster County have new snow that totals at least one inch (NOAA’s 1981-2010 Climate Normals as compiled by Current Results). Snowstorms of over five inches happen on average about one time per year. For the purposes of this estimate, snow removal is estimated at 50 times per year.

4. Flood insurance covers existing park and it is assumed that the coverage will include Phase Three developments.

5. Custodial Services are assumed as two (2) visits per day as a ‘worst case’ scenario.



## List of Photographs

### Page

13	Indian Rock Petroglyphs; <a href="http://www.phmc.state.pa.us/portal/communities/archaeology/native-american/little-indian-rock.html">http://www.phmc.state.pa.us/portal/communities/archaeology/native-american/little-indian-rock.html</a>
14	Paxtang Path (from Indian Paths of Pennsylvania by Paul A. W. Wallace, 1971)
15	Old Canal Basin, Columbia, Pa.; Pub. by Zeamer The Druggist
28	Washington Square Convenience Station, Paulett Taggart Architects; Bruce Damonte Photography
30	Seattle Department of Transportation, <a href="https://www.flickr.com/photos/sdot_photos/9078163060">https://www.flickr.com/photos/sdot_photos/9078163060</a>
34	Dimster Architecture, <a href="https://www.pinterest.co.uk/pin/207236020333136500/?lp=true">https://www.pinterest.co.uk/pin/207236020333136500/?lp=true</a>
36	Florida Museum Wildflower & Butterfly Garden, <a href="https://www.floridamuseum.ufl.edu/exhibits/wildflower-garden/">https://www.floridamuseum.ufl.edu/exhibits/wildflower-garden/</a>
37	<i>A Boy And His Mule</i> , <a href="http://www.ipernity.com/doc/jonathan.cohen/28089567">http://www.ipernity.com/doc/jonathan.cohen/28089567</a>
37	Marty Pouselse Photograph, Forest of Memories, <a href="http://www.arts.gld.gov.au">www.arts.gld.gov.au</a>
37	<i>Building Blocks</i> , Kumi Yamashita
40	Festival Park, <a href="https://www.tomecekstudio.com/festival-park/">https://www.tomecekstudio.com/festival-park/</a>
40	New Road, <a href="http://www.landezine.com/index.php/2011/04/new-road-by-landscape-projects-and-gehl-architects/">http://www.landezine.com/index.php/2011/04/new-road-by-landscape-projects-and-gehl-architects/</a>
41	Trip Advisor
42	Sunken Garden, William & Mary College
42	Mt. Cuba Center, <a href="http://www.chaddsfordlive.com/2013/04/03/mt-cuba-center-announces-open-days/">www.chaddsfordlive.com/2013/04/03/mt-cuba-center-announces-open-days/</a>
42	Sacramento Rivertrail, <a href="http://www.visitredding.com">www.visitredding.com</a>
43	The Pennsylvania Dugout Canoe Project, <a href="https://lakeroland.org/wp-content/uploads/2018/09/Dugout-Canoe-1.pdf">https://lakeroland.org/wp-content/uploads/2018/09/Dugout-Canoe-1.pdf</a>
47	Contech Engineered Solutions
47	Green Yoga Aspinwall, <a href="http://ww2.onvacations.co">ww2.onvacations.co</a>
47	Group Camping, <a href="http://www.Sepaq.com">www.Sepaq.com</a>
51	Barangaroo
52	Garmin Expansion Sandscape Con Color_MandH Asphalt Pavers, Hanover Architectural Products

Photographs not listed are the property of Environmental Planning & Design.

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## APPENDICES and SUPPLEMENTS

Due to the large volume of information for the Appendix and Supplements, a copy is available at the Borough office for review. Below is the information included in the document.

### Site Background Data

- 1 River Park Phase III Property and Topographic Survey
- 2 Heritage Drive Extension Plan
- 3 PNDI Search Results
- 4 Historic Canal Drawings/Maps
- 5 Historical and Cultural Abstracts (full CDC whitepapers)
- 6 Compilation of Site Images

### Public Engagement

- 7 Key Person Interviews Summary
- 8 Trail Days
- 9 Community Survey Results
- 10 Concept Alternative Questionnaire
- 11 Open House – Visual Preferencing

### Concepts

- 12 Concept Plan Alternatives
- 13 Railroad Crossing Alternatives